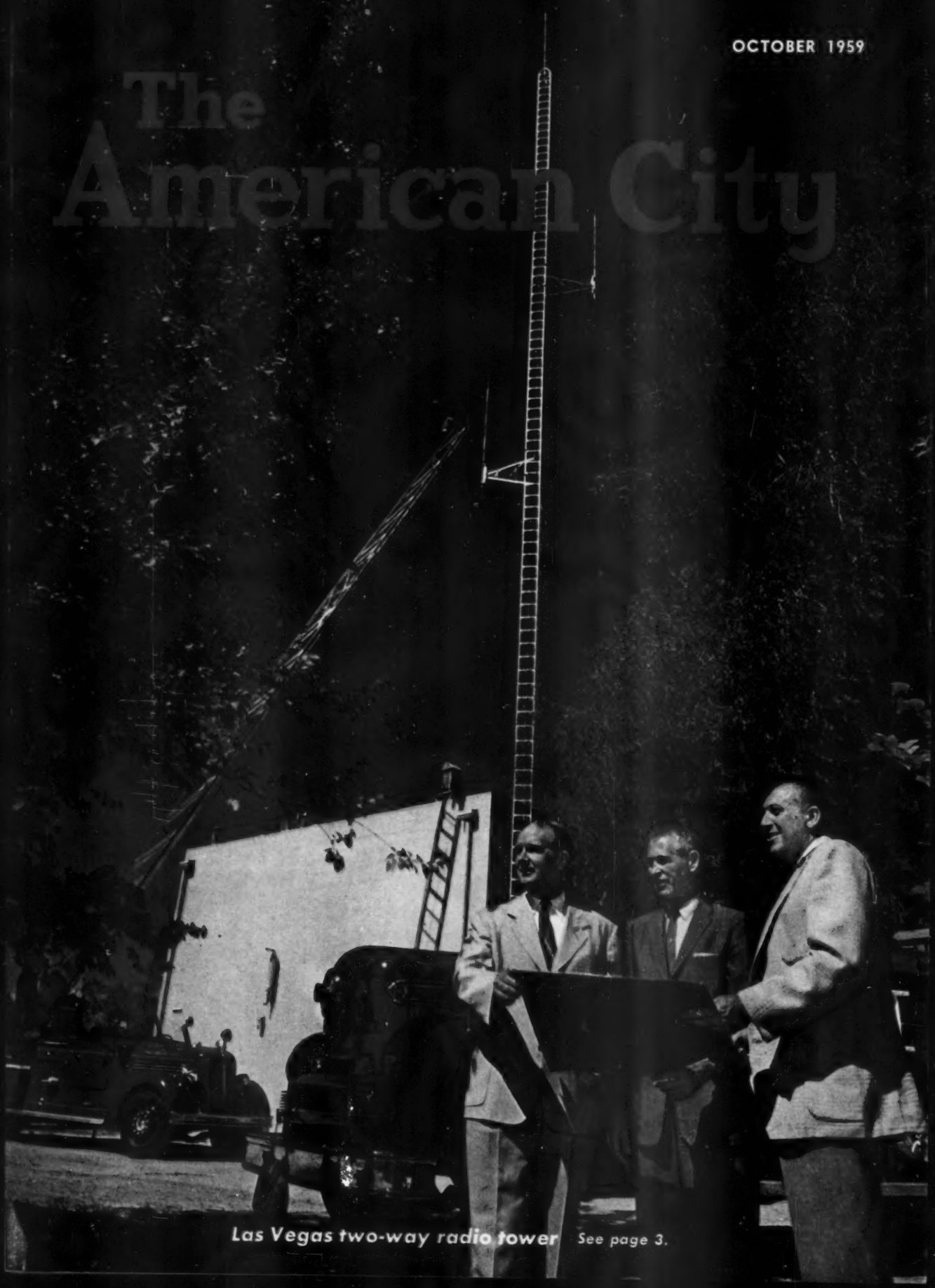
OCTOBER 1959

The American City



Las Vegas two-way radio tower See page 3.

There are more ways to pave or surface them with ASPHALT

STREETS
•
PARKING AREAS
•
AIRPORTS
•
SIDEWALKS
•
PLAYGROUNDS

Roosevelt Boulevard in Philadelphia, which underpasses the traffic circle, is served by a heavy-duty Texaco Asphalt pavement of the plant-mixed type.

No other material so completely fills a city's varied paving needs as does Asphalt.

Plant-mixed Asphalt pavements of the Asphaltic Concrete and Sheet Asphalt types are designed to serve the city's heaviest traffic. There are intermediate types of Asphalt paving, moderate in cost, intended for use under medium to fairly heavy traffic. Other Asphalt products are used to provide tough, waterproof mats of varying thicknesses at low cost for service under light traffic.

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Boston 16 Chicago 4 Denver 1 Houston 1 Jacksonville 1 Minneapolis 3 Philadelphia 2 Richmond 11

TEXACO

TEXACO ASPHALT

The American City

OCTOBER 1959

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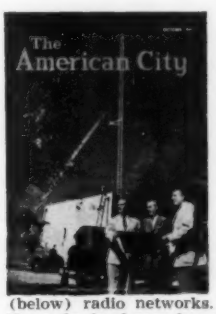


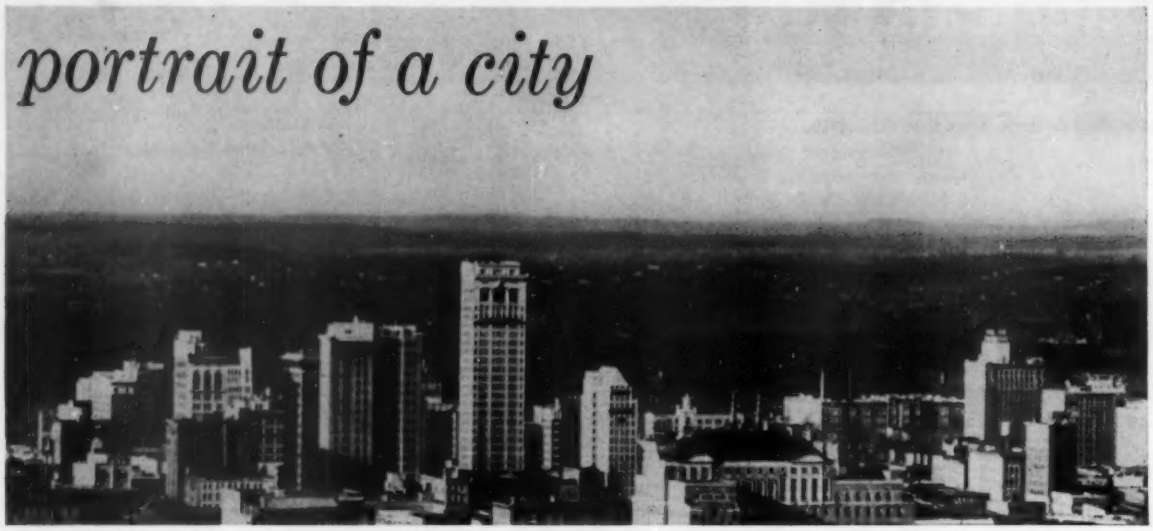
COVER PICTURE

With the municipal signalmen in session October 19th-22nd in Las Vegas, Nevada, our cover presents City Commissioner Reed Whipple, Mayor Oran K. Gragson, and Superintendent of Fire Alarm and Communications Jerry Robinson discussing the plans for the completion of the Las Vegas Civil Defense and Local Disaster Communications Center. The trucks are a 65-foot aerial (left) and a 1250-gpm pumping engine, both Seagrave. The tower supports the Motorola antennas for the Fire Department (top), Police (middle), and Public Works (below) radio networks. On page 41 City Manager A. H. Kennedy is shown inspecting the fire alarm dispatch office in the communications center.

A Buttenheim Publication

GOLDEN ANNIVERSARY YEAR 1909-1959

portrait of a city



INCREASING ITS REVENUE WITH OUTDOOR TELEPHONES

The city is Birmingham, Alabama In 1954, the City Commissioners decided to extend 24-hour public telephone service to everyone by placing lighted outdoor phones on city property. Because of the convenience and security these phones offer, their acceptance has been immediate and enthusiastic. From a beginning of thirty-six phones, there are now 288 within the city limits. Based on the present rate of development, Birmingham should have over 500 such telephones—and many times the original revenue—by the end of 1962.

A public telephone plan, custom-designed by your local Bell Telephone Company, will result in new profits for *your* city, too, and better service to your citizens. For complete information, call our Bell Telephone Manager. A representative will visit you at your convenience.

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Volume 74 Number 10

The American City

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Municipal Index	EDUCATIONAL BUSINESS	AMERICAN SCHOOL AND UNIVERSITY

LETTERS TO THE EDITOR

Ohio River Purification

The Cincinnati story on the completion of major sewage-treatment facilities reflects the action one expects of a city that has been a leader in the crusade for clean waters in the Ohio River Valley ("Cincinnati Builds the Best By Test," June 1959, p. 87).

It was in Cincinnati in 1948 that the governors of eight states in the valley signed a document to pool their resources and their police powers in a united fight against water pollution. This document created the Ohio River Valley Water Sanitation Commission, an agency representing Illinois, Indiana, Ohio, Pennsylvania, New York, Virginia, West Virginia and Kentucky.

Ten years ago the condition of the Ohio River was sad indeed. Less than 1% of the population along the river was provided with sewage treatment. Today, treatment facilities have been installed to serve 92% of the population! Some progress has also been made—but far from enough to satisfy the needs—in the control of industrial waste discharges.

Citizens of the City of Cincinnati have made a $60 million investment to bring about this change. Their upstream neighbor, Pittsburgh, has made a $100 million investment. And scores of smaller communities have made proportional contributions. Probably in no other river valley in the world has there been a greater responsiveness of people to the common cause of maintaining clean waters.

EDWARD J. CLEARY
Executive Director
Ohio River Valley
Water Sanitation Commission
Cincinnati, Ohio

Cluster-Garden Subdivisions

The article, "Cluster-Garden Subdivision," by Mr. Myron X. Feld (July 1959, p. 109), was read with inordinate interest and enthusiasm.

The cluster-garden subdivision has gained remarkable momentum in the last few years and might, under public and official guidance, supplant the curvilinear design which is merely transitory at best.

The cluster-garden design, which is the Radburn Plan or Greenbelt Plan under a new and dreamier name, has been with us at least since the development of the London Inns of Court. The design has seen temporary acceptance, neglect, and adulteration; but, like the phoenix, has perennially recurred. In the final analysis, this design must inherit the role of the grid-iron pattern. Neither the radio-centric nor curvilinear patterns are proper for housing development. The cluster-garden, furthermore, is adaptable to multiple as well as single-family dwelling use.

DANIEL M. PASS
City Planner
Napa, Calif.

EDITOR'S NOTE: An article describing the Radburn Plan appeared in THE AMERICAN CITY in October 1928. For more about the Greenbelt Plan, see "A Greenbelt Town Grows Up," p. 143 of this issue.

A Matter of Taste

Sometimes questions are resolved on the basis of taste, as Mrs. O'Leary said when she kissed the cow. If an operator of a plant, having experience with certain types of equipment, learns to get the most out of such equipment and therefore becomes quite attached to it, he is very likely to favor the incorporation of such equipment in the plans and specifications.

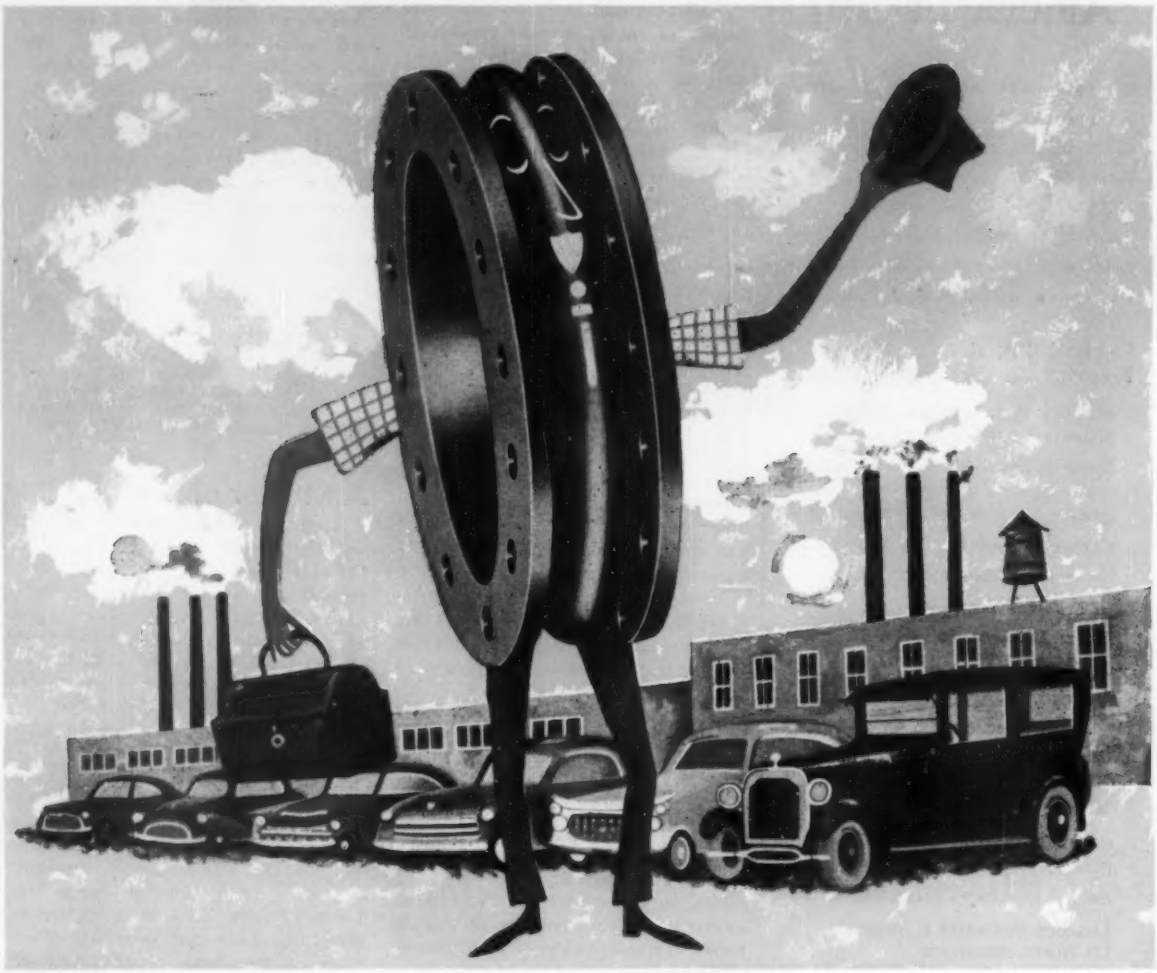
With respect to the Mieder type sludge collectors, Mrs. O'Leary's comment may well apply ("A Different Way to Collect Sludge," July, 1959, p. 88). The Mieder machine has not been in common use in the United States. Consulting engineers obviously have not been attracted to it on the basis of efficiency or merit; otherwise there would have been more widespread use of such equipment.

It is not surprising to learn that the operators of the Mieder machine installed in the Elizabeth, N. J. plant are pleased with their operation and for this reason have selected additional Mieder machines for their plant extension. I have found from my own experience that operators can make equipment look either good or bad depending upon whether or not they are interested in making it work properly. The Elizabeth plant operators without a doubt are sincere in their preference for the Mieder equipment for the reason that they have made it work most successfully.

If the choice of the equipment were decided on questions of efficiency and first cost as well as

(Continued on page 18)

US RUBBER EXPANSION JOINTS



He started working 35 years ago
—we don't know when he'll retire!

We refer to one of the first expansion joints introduced to industry. Installed in the year 1924, it and its "U.S." brothers in an Eastern power station show no sign of tiring. They are the oldest expansion joints ever made, active or retired, *for "U.S." pioneered in expansion joints.*

No records have been retained of all the "U.S." Expansion Joints installed in 1924. We know of others of that date that just refuse to wear out, just refuse to cause trouble. We have records for subsequent years each testifying to the endurance and fine working performance of "U.S." Expansion Joints.

These economical, flexible connections are used in pipe lines to take up stresses caused by vibration, expansion and contraction. They stop transmission of noise, take care of misalignment. A wide range of industries relies on "U.S." Expansion Joints to prolong the life of equipment in pressure or vacuum lines.

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EDITORIAL

How to Make Urban Renewal Profitable

. . . or how to make slum properties financially unprofitable

Perhaps this is as good a time as any to take a cold, impersonal look at the urban blight problem. Without doubt, it is as tough as any that we face today. It manifests itself in the form of broken families, juvenile delinquency, crime, racial unrest. When people live in slums, the more generous and creditable qualities in man have trouble coming to the surface.

On the national level, the public looked apparently with only mild curiosity on Federal Housing legislation passed in the last session. Congress first presented the President with a $1,375,000,000 housing bill which he promptly vetoed. Congress then presented a "compromise" bill for which the President showed equal dislike. In the closing days of Congress, the legislators presented a third bill, involving about a billion dollars which (at the time of this writing) the President apparently is going to approve. The disinterest in this legislation indicates rather clearly that a Federal Housing Program is not an issue that is likely to elect new administrations or control Congress.

Perhaps this has its good qualities. We need reminding that something can be done on a local level to stimulate urban renewal. The tools rather clearly are available that can make slum property a bad financial investment. This, by itself, will do much to check urban blight.

There is no need for example to have a 20-block slum area in New York yield rents averaging $2.30 per square foot while well-maintained elevator apartments will earn $1.30. Neither is there need for people to be reminded that in almost any city substandard rental housing is owned by some of the most substantial citizens in town.

However, before superficially accusing the "slumlords," let us see what conditions exist that make these depressed areas one of the most profitable forms of long-term real estate investment. The reason is simple.

They are using a tax policy, set by the city or state, which assesses property on the basis of low cost and poor condition of the buildings—not on the high value of the land they occupy. Land value assessments, says Arthur Rubloff, Chicago realtor, ought to be set high enough to make the maintenance of these poor properties economically impossible. P. J. Cullerton, Cook County (Ill.) assessor, has announced plans to take action—to revalue property, increasing the valuation of slum properties by over 60% while boosting the valuation of standard properties about 10%.

The next most needed step is to stimulate construction of wholesome living quarters at modest rental values. Not enough has been done to utilize the power of local government to provide this support.

New York City has tried a system of tax abatement. It exempts for a period of 12 years the real estate tax on the value of improvements on multiple dwellings, and permits amortization of 75% of the cost of improvement over a 9-year period. The system hasn't worked altogether well. It was designed to provide such necessities as central heating and hot water for cold-water flats. Some owners have used this as a means of upgrading the entire property, pricing it out of the pockets of the people who lived there. A new ordinance attempts to plug this loophole.

Boston also has a tax incentive that it hopes will work. Boston's current property tax is now so high that many feel it is reaching a point of diminishing returns. The plan is to lease the property to the builder, thus protecting him from the fast-rising tax rate. The lease will be roughly equal to the present tax income on the land.

Kansas City's program probably is best, judged from the activity of its rebuilding program. (Everyone keeps quoting Kansas City's splendid record over the past 20 years, now curiously repudiated by its voters.)

Under its program, the city bases taxes on the assessed valuation of the rebuilding site *before* improvements, for the first 10 years. The city then boosts taxes to 50% of the assessed valuation *with* improvements, for the next 15 years. At the end of this period, the property goes back on the tax rolls for the full share of the burden. During the 25-year period, the builder limits his return to 8% per year.

We must not lose sight of the fact that a city, or any urban governmental grouping, is a powerful organization of human forces. It has the deep responsibility of coordinating those forces within the framework of a government based on the cherished rights of the individual. Measures such as these, that tend to make blighted areas no longer profitable investments and in turn make the construction of desirable, wholesome housing attractive to builders and investors, are needed as much as programs developed in Washington.

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the wiser you are to use straight Sterling Rock Salt for ice control

One truckload of straight Sterling Rock Salt covers *eight* times more road mileage than a truck filled with abrasives alone. (It covers three to four times more road mileage than a truck of salt-and-abrasives!) Thus, with straight rock salt, reloading trips are drastically reduced, and your mileage is covered more quickly, more efficiently. In addition to the advantages of speed and economy, straight Sterling Rock Salt provides bare pavements—the only safe pavements during winter storms.

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STREET CLEANING AND SNOW REMOVAL

Fort Worth's front-end loader speeds up gutter cleaning following heavy rains, especially in the newly developed areas.

Motorized Street Cleaning Pays Big Dividends

Fort Worth, Texas like most other cities uses motorized street sweepers to clean many miles of paved streets. But the city also faces the problem of keeping gutters clean on some 400 miles of chat and asphalt streets. Residue in the gutters becomes compacted, and frequently grass or weeds grow in it. In rainy weather many cave-ins along the chatted streets—along with mud run-off from the sloped banks—fills the gutters with dirt and stones. This is particularly prevalent in the newly developed areas where lawns have not yet grown to the point where they can hold back the dirt.

To expedite this work, Otis R. Howell, general foreman of the street cleaning department, added a three-man motorized crew to the hand crews. Equipment consists of one truck and a Massey-Ferguson Work-Bull 1001 Tractor Shovel. Manpower includes the tractor operator, truck driver and one laborer.

D. B. Williams operates the 1001, using the bucket both as a blade and loader. The laborer and truck driver move along with the tractor and help as the material is collected. Formerly much of this work was done by "pick and shovel" workmen alone. Today the motorized crew does as much gutter-cleaning in one day as manual crews could accomplish in 30 days.

The loader also fills an important assignment at the street department yard loading chat into trucks, another job formerly done by hand.

A Change in Sand Spreading Ends Complaints

Spreading sand on densely parked, heavily pedestrianed streets posed one of the big problems of snow and ice control in Elizabeth, New Jersey. We used mechanical spreaders, but only before and after business hours on the busy streets for, in spite of the extreme care exercised by our men with these spinner disk spreaders, we could not completely avoid showering pedestrians and parked cars with the sand. When sand spreading did become necessary during this period of the day, we were forced to resort to the old method of shoveling sand manually from the rear of a truck.

Fortunately this has been changed by the purchase of a new type of spreader. After considerable searching, we decided to try a Flink, Model HD41, Tailgate Spreader and found that it solved our problem. The unit, easily installed and removed from the truck, replaces the standard tailgate assembly and does not interfere with normal dumping operations. The paddle shaft throws sand down and outward across the street. rather than up and outward. The new method thus avoids showering parked cars and passing pedestrians with the sand. As a result we have put an end to complaints.

Originally we thought it would be necessary to equip eight to ten trucks with this type spreader to accomplish a satisfactory spreading job, but with the excellent control provided, we now feel a maximum of five units will do the job.

MICHAEL MAGNOLIA
Street Commissioner
Elizabeth, N. J.

James N. Cole, Highway Superintendent, Smyrna, N. Y.: "We use our No. 977 to build roads, knock down trees, dig ditches, shovel snow and a host of other jobs as they come up. Not only is it versatile, but it really produces."

No. 977 "REALLY PRODUCES"

High production and versatility. This combination of doing many jobs and doing them well makes the Caterpillar No. 977 Traxcavator one of the most economical machines tax dollars can buy.

For this machine is designed to give you peak production. Lift and tilt levers are closely spaced for one-hand operation. With float and lock mechanism, operators can release levers while the bucket is in motion. An automatic positioner stops the bucket at dumping height and returns it to the desired digging angle. And the bucket can be tilted backward 40 degrees at ground level to pry a full load on every pass.

"That pry out action of the bucket enables us to dig rock and get a bucketful every time," agrees Mr. Cole.

The instant response of controls provides excellent maneuverability, particularly in close quarters. Now even quicker cycle times are possible with the exclusive Caterpillar side dump bucket. It confines maneuvering to a forward-reverse movement.

"And," continues Mr. Cole, "the power boosted clutches make the operator's job easy because of the fast response."

Here's a machine that pays off big. And there's one to fit your exact requirements—the No. 933 with a 1⅛ cu. yd. bucket, the No. 955 rated at 1½ cu. yd. and the No. 977, 2¼ cu. yd. size. Ask your local Caterpillar Dealer for up-to-date facts on Traxcavators. Better yet, challenge him to demonstrate one of these machines on your next job. You name the date, and he'll be there.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

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TAXPAYERS GET THEIR MONEY'S WORTH WITH CAT-BUILT MACHINES

This artist's rendering shows the close proximity of Oklahoma City's crosstown expressway to the central business district.

Crosstown Expressway for Oklahoma City

Preliminary plans for Oklahoma City's crosstown expressway received approval on August 6th. The continuous elevated structure, approximately two miles long, will go through the city just four blocks south of the downtown business district. It will link the principal north-south, east-west and northeast routes into and out of the city.

The new expressway will consist of six 12-foot roadway lanes, an eight-foot median, and six-foot shoulders on either side. It will provide four entrance and four exit ramps. It will cross over the main-line and yard tracks of the Santa Fe railroad on three spans continuous over four piers. Span lengths at this point are two of 142 feet and one of 204 feet. Benham Engineering Company of Oklahoma City is consulting engineer to the Oklahoma State Highway Department and the Federal Bureau of Roads for about 0.9 miles of the structure.

A Change in Asphalt Specifications

The Asphalt Institute has scrapped the loss-on-heating test and has adopted the thin-film oven test instead. John M. Griffith, Engineer of Research at the Institute, explained that the new test provides a better indication of asphalt quality.

The weight loss on heating is actually irrelevant in itself. The critical factor to be determined is whether heating results in a significant loss of penetration and produces undue hardening of the asphalt in plant operations. The thin-film test is indicative of such hardening and, consequently, is replacing the loss-on-heating test in all Asphalt Institute specifications for asphalt cements.

Drive Launched

The Institute has also launched a drive to enlist general engineering support for certain changes in asphalt pavement design and construction criteria. Thicker asphalt sections, tighter compaction specifications and better drainage of multiple-highways are key elements in the Institute program.

Modern heavy traffic with higher tire pressures produces increased stresses. To meet the demands of present and future traffic on heavily traveled roads, the Institute strongly recommends the inclusion of an asphalt base in addition to a 4-inch minimum thickness of asphalt concrete in the surface and binder courses.

Regarding compaction, asphalt pavement courses should be compacted with rollers which apply contact pressures equal to or greater than those applied by the traffic which will use the pavement.

Moisture control must also be given increased emphasis. Drainage must be full width and adequate to prevent excessive moisture from accumulating beneath a broad expanse of pavement. This is particularly important on the new four-lane, six-lane and eight-lane expressways.

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The DEMPSTER-DUMPSTER System of one truck handling any number of containers has saved municipalities many millions of dollars. All-steel, enclosed, sanitary containers are available up to 15 cu. yd. capacity. Patented sump-bottom containers available for wet or moist refuse. One man, the driver, picks up, hauls, dumps and returns the empty container . . . handles hundreds of yards of refuse daily. Now in use in hundreds of progressive cities.

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How YOUR City Can Get a Scientific Analysis of its

Methods and techniques of mechanized refuse handling have undergone many revolutionary changes in the last 18 months. That's why far-sighted city officials from coast to coast are surveying . . . examining and comparing their present systems against these new developments.

Disposal areas are moving farther and farther out; new shopping, commercial and manufacturing areas are springing up to compound the city's refuse disposal problems and throw more burden on the tax dollar. To meet these specific problems, new equipment has been developed—some fits in one situation . . . doesn't fit in another.

Dempster Brothers maintains a staff of trained survey engineers who are specialists in analyzing methods of refuse storage, collection, transportation and disposal.

These skilled men are available to assist your planning groups *without cost or obligation*. Each year these engineers make hundreds of surveys in cities

refuse disposal costs

DEMPSTER® DINOSAUR

All structures shown are Patented or Patents Pending
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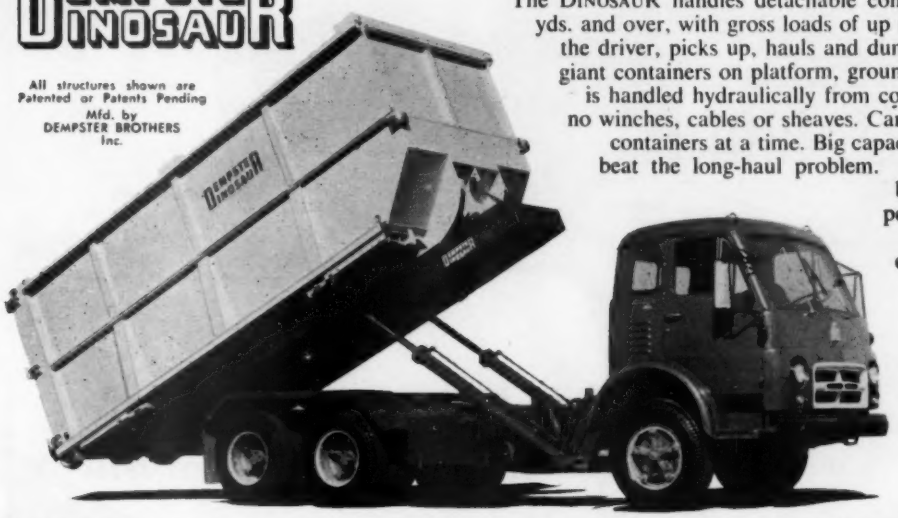
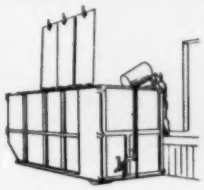


The DINOSAUR handles detachable containers up to 40 cu. yds. and over, with gross loads of up to 15 tons. One man, the driver, picks up, hauls and dumps or puts down the giant containers on platform, ground or legs. Everything is handled hydraulically from controls in the cab . . . no winches, cables or sheaves. Can handle two or more containers at a time. Big capacity and big pay loads beat the long-haul problem. Excellent for use at big refuse generation points or as a portable transfer station for conventional packers.



DEMPSTER COMPACTION TRAILER & GRD 304-F-2

Big-capacity hydraulic compaction trailers have own power plant, haul up to 200 cu. yds. of loose material on every trip to the disposal area. Can be loaded with GRD 304-F-2, or ramp-loaded by DEMPSTER-DUMPSTERS, or conventional packer trucks. Available in two sizes, 42 and 53 cu. yds.

Disposal Methods FREE!

large and small. They meet and consult with municipal personnel at all levels, analyze costs, ordinances, capital outlay and then present a comprehensive report that compares present methods with other available techniques. Because of their experience and broad knowledge of *all* types of equipment, they are able to make many valuable suggestions even when Dempster Brothers equipment is not indicated.

If you would like to consult with one of our engineers, write today. There is no cost or obligation.

To: DEMPSTER BROTHERS—Dept. AC-10
Knoxville 17, Tenn.

Please send: ☐ Information on Free Survey

Free Brochures on ☐ Dumpmaster ☐ Dinosaur ☐ Dumpster ☐ Trailer and GRD 304-F-2.

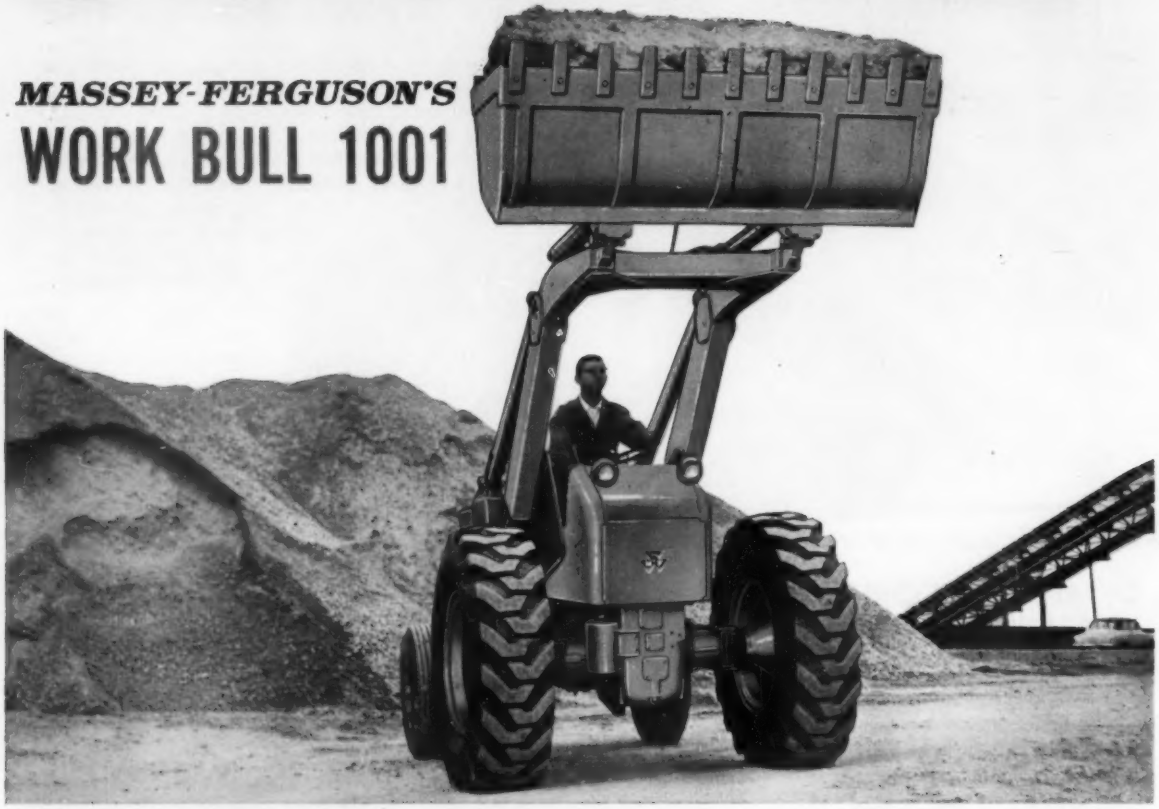
Name _____ Title _____

Address _____

City _____ State _____

COMPARE-

MASSEY-FERGUSON'S WORK BULL 1001



against any Tractor Shovel in its class!

☆ **EXCLUSIVE INSTANT REVERSING** — Change direction of travel — either forward or reverse — at a touch of your toe — no shifting . . . no clutching . . . no levers to pull. Shortens cycle time between load and dump.

☆ **PERFORMANCE** — One cubic yard SAE rated capacity, 43° rollback at ground level, direct-line thrust, torque converter, power steering, maximum visibility, five equal speeds forward and reverse add up to greater on-the-job performance.

☆ **VERSATILITY** — A full range of perfectly matched attachments include a combination Davis Backhoe-backfill blade, asphalt spreader, pick-up street sweeper, rotary boom, angle dozer, crane, fork lift, scarifier, and a variety of buckets.

☆ **QUALITY** — Designed and manufactured for rugged construction and industrial applications. Has strength built-in and quality in every part.

Yes, we invite you to compare Massey-Ferguson's Work Bull 1001 against all the rest. You'll soon be convinced of its superiority . . . of its profit-making and time-saving advantages on the job. You'll see why it can outperform costly, single-purpose machines. Ask your Massey-Ferguson Industrial Dealer for a demonstration.

Why Wait? Set a Date — We'll Demonstrate!

MASSEY-FERGUSON INDUSTRIAL DIVISION
Block 1000 South West Street • Wichita 13N, Kansas

The operator's view of Sunshine Canyon is good. Mountain climbing bulldozer (right center) blades off the ridge tops for cover material.

Unlimited Cover for San Fernando Fill

Cover for the operation of the North Valley Refuse Center sanitary landfill in San Fernando, Calif. will never be a problem, in spite of the fact that an average of 200 trucks (most of them of the over-size gondola type) dump at the site daily.

Two Allis-Chalmers HD-21 crawler tractors, with dozers to spread and compact the refuse that is dumped in Sunshine Canyon, have been teamed to stay ahead of the parade of dumpers.

The first diesel-powered unit goes to work at 6:00 A.M., as the first trucks arrive. This operator spreads and compacts the refuse in low portions of the valley as a continuous operation during the entire period of his shift.

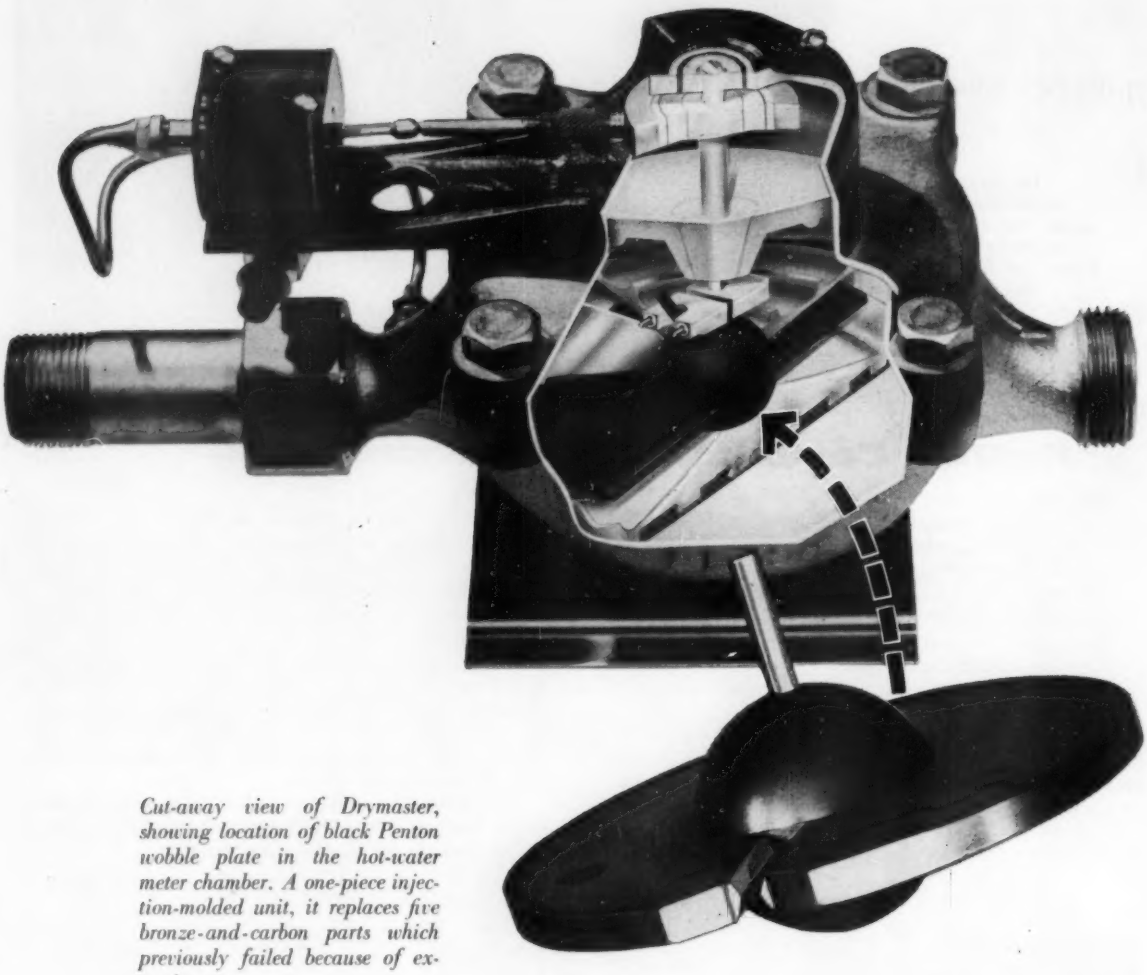
At about mid-morning, the second operator arrives on the job and starts pushing cover material from the ridges of surrounding hills and down into the canyon. The cover consists of common dirt, shale and sandstone and it is stockpiled at the bottom of the hill until the end of the day's compacting operation.

The 6-o'clock operator finishes his shift at 2:30 in the afternoon, while the "late arrival" continues his work until 8:00 P.M. The evening hours are used to cover refuse material deposited during the day. Every night all of the material is blanketed with a 9-to-12-inch layer of cover.

One sidelight to the operation is a 110,000-gallon water tank that was built on top of a nearby hill as fire protection for the sanitary landfill.

One of the diesel-powered crawler tractors spends the entire shift spreading and compacting the refuse. The water storage tank on the hilltop was erected for fire protection.

THE HEART OF THIS HOT-WATER METER



Cut-away view of Drymaster, showing location of black Penton wobble plate in the hot-water meter chamber. A one-piece injection-molded unit, it replaces five bronze-and-carbon parts which previously failed because of excessive wear.

Information regarding meters and Disc and Half-Ball Assemblies is available from the Industrial Division, Economics Laboratory, Inc., St. Paul 1, Minnesota

THE DRYMASTER STORY

*Drymaster**, a new proportionate pumping system, was developed by Economics Laboratory, Inc., to automatically dispense its nationally known line of chemical formulations for commercial dishwashing. The *Drymaster* was originally powered by a standard ⅝ in. water meter, driven by a conventional 5-piece bronze disc and carbon half-ball assembly.

Failures after only a few months of service were directly traced to wear of the disc and half-ball (see photo, opposite page). In the long search for a suitable replacement, more than 150 materials were extensively evaluated, including metals, glass, plastics, and combination products.

Penton—a tough new thermoplastic—proved the answer. It worked best, and at the same time, cost less.

**Tradename of Economics Laboratory, Inc., St. Paul, Minn.*

IS A ONE-PIECE PENTON® PART

This precision-molded unit replaces five parts... costs less yet increases service life manifold

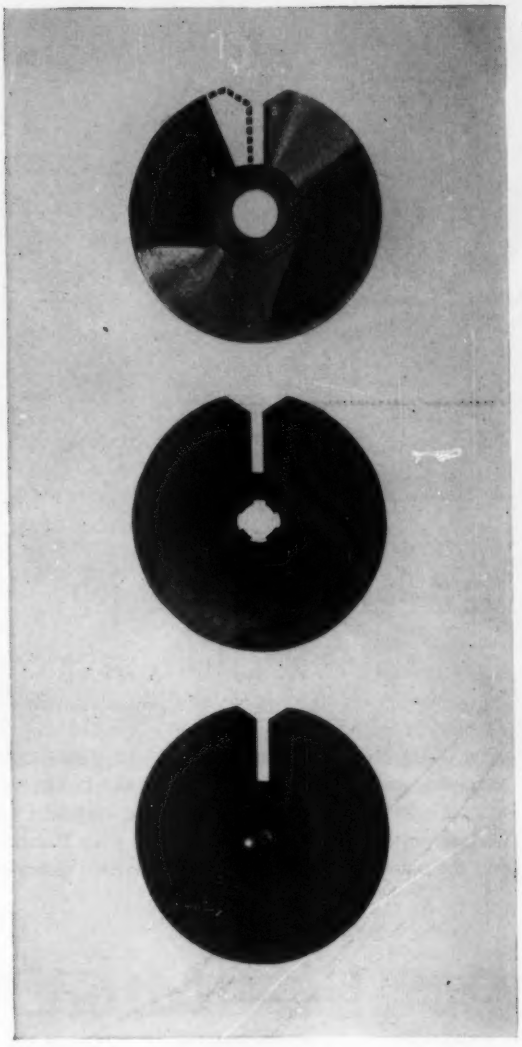
THE PENTON STORY

The success of Penton in the *Drymaster* is typical of the way this versatile new thermoplastic can be precision-molded to provide superior, low-cost replacements for expensive machined metal parts.

Although one of the newest of plastics, Penton chlorinated polyether was exhaustively tested during five years of product evaluation prior to its recent introduction as a commercial material. As a result, it already has a fine record of proven performance in a wide variety of anticorrosive uses: valves, pipe, fittings, tank linings, pump and meter parts.

Penton's outstanding mechanical and chemical properties enable it to outperform even high-cost metals and glass in many tough corrosive exposures. On the other hand, its adaptability to modern injection-molding techniques permits the design of parts which eliminate costly assembly and finishing operations. Penton unit costs compare favorably with parts machined from hard rubber or metals, while permitting operating temperatures in excess of 250°F.

This new, *truly functional* plastic can play an important role in your product picture, particularly if you use metering devices or other equipment handling corrosive fluids. For complete details on Penton, including a folder charting Penton's resistance at elevated temperatures to more than 250 different chemicals, call or write:



Here's dramatic evidence of Penton's superior wear characteristics after 100,000 gallons of 220°F. hot-water service. Slot in bronze disc (at top) has worn away to an extent that the meter no longer functions accurately. Penton test disc (center) remains relatively unchanged after same exposure, as compared with production line part (lower photo).

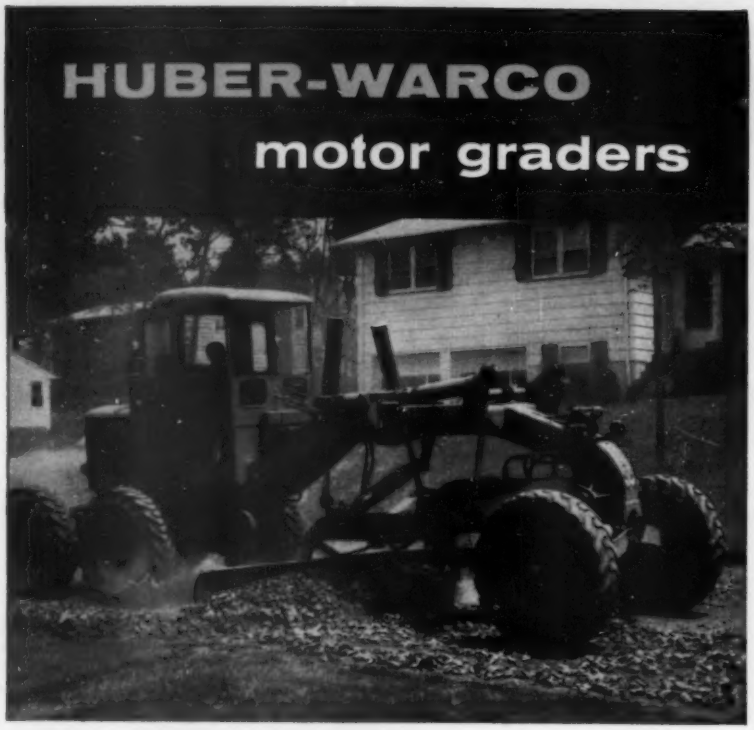
Cellulose Products Department

HERCULES POWDER COMPANY

INCORPORATED

Wilmington 99, Delaware

CP59-15



right for any grading job

The Huber-Warco development engineers have designed the motor grader line with the user in mind. In addition to routine grading and maintenance assignments, the Huber-Warco motor graders will spread stone or blacktop, ditch, bankslope, or any other job required of a grader with a maximum of efficiency and a minimum of down-time. Huber-Warco motor graders are available in both torque converter and standard transmission models in a horsepower range of 75 to 195 h.p. Let your Huber-Warco distributor show you the many plus features of Huber-Warco motor graders.

MAINTAINER

MOTOR GRADERS

TANDEM ROLLERS

3-WHEEL ROLLERS

Products of HUBER-WARCO COMPANY, Marion, Ohio, U. S. A.

HUBER-WARCO COMPANY, Marion, Ohio, U.S.A.
☐ Send specifications on Huber-Warco motor graders.
Send specifications on: ☐ Maintainer
☐ Tandem Roller ☐ 3-Wheel Rollers

Name _____
Title _____
Company _____
Address _____
City _____ Zone ____ State _____
AC-10

HUBER W WARCO

(Continued from page 5)

operating cost, it would be interesting to discover what the answer would be. There is no question but that the settling tanks at Elizabeth are of excellent proportions for good settling efficiencies. It is not surprising to obtain the 1957 efficiencies cited in the article. In fact I would expect somewhat better. No efficiencies are given for the period prior to 1957 before the plant was overloaded. In my opinion, the Mieder machine had nothing to do with these efficiencies any more than the other type of design would have much to do with removals and concentrations. Efficiencies are produced largely by the dimensional qualities of the settling tanks and the matter of efficient operation of sludge removal. For instance if the Mieder machine were to operate too rapidly there would be an upsurge of settling sludge finding its way into the effluent channels.

With respect to operating features of the various designs, especially of the Mieder type, one would have to give consideration to the "monorake" in addition to the conventional straight-line collectors. Extensive repairs to the Mieder machine would require taking the tanks out of operation just as would be necessary with other types. It is very possible that the Mieder type equipment is less costly to maintain. This is certainly important.

Nevertheless, the question of sludge removal is a matter of preference. Some engineers prefer the straight-line type to the Mieder type. In fact opinion in the office of one prominent consulting engineer is divided between the straight-line type and the monorake or the Mieder type.

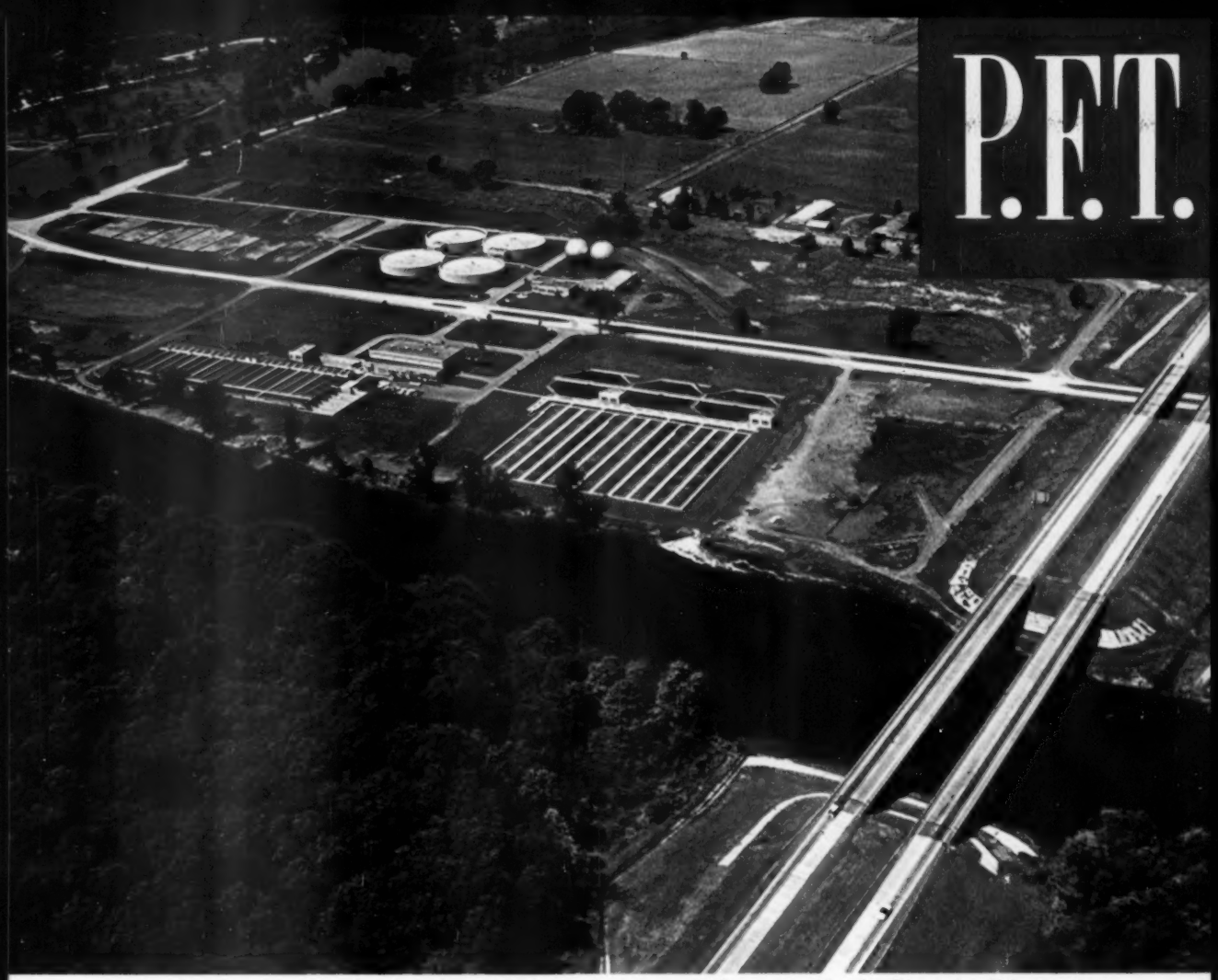
J. F. LABOON, *Executive Director*
Allegheny County
Sanitary Authority
Pittsburgh, Pa.

Fluoride Vote In NYC

New York's City Council President Abe Stark expects the Board of Estimate to vote before the year is out on the use of fluoridation.

Mr. Stark told guests of the American Dental Association's centennial convention in New York that he would support fluoridation.

However, the city's Department of Water Supply has opposed the treatment from the start. Twelve votes are needed for Board of Estimate approval. At the time of Mr. Stark's address only eight were assured—the four votes each of Mayor Wagner and of Mr. Stark.



South Bend's new sewage treatment plant, bounded by Indiana's new superhighways, provides the ultimate in efficient sanitation.

A parallel in progress . . .

Sewage treatment at South Bend keeps pace with the superhighway era

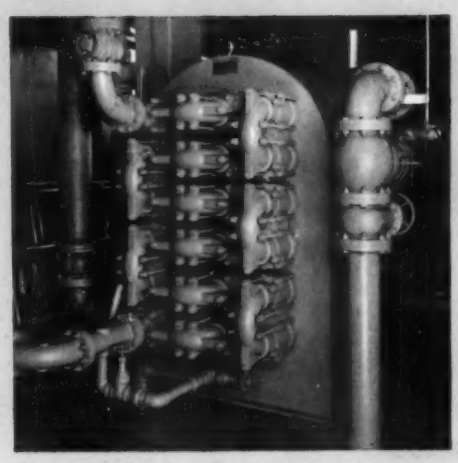
In an era of superhighways and rapid economic growth, South Bend, Indiana, stands among the country's leaders. The city has accomplished much to make the whole South Bend area attactive to industry and new residents.

This new sewage treatment plant has eliminated a long-time health nuisance for South Bend and all the communities to the north on the St. Joseph River. Recreational facilities have been created and the river restored to its natural beauty.

Industry has cooperated in this "clean-up" campaign and South Bend has made many friends up and down the St. Joseph. Modern P.F.T. sewage treatment equipment has played a vital role in making this all possible. South Bend is truly a better place to live for its present residents and for the many who will reside there in the years to come. For further technical information on the South Bend Story please turn this page.

P.F.T.

Consulting Engineers—Consoer, Townsend and Associates, Chicago.



Special P.F.T.-Drum Type Heat Exchanger Units.

The four 110′ P.F.T. floating covers at South Bend

And these are only a part of the P.F.T. equipment used in South Bend's new Sewage Treatment Plant. The heat for the digesters is supplied by two P.F.T. No. 750 Heaters and Heat Exchangers and two P.F.T. No. 429-E Special Drum Type Heat Exchanger Units (shown above).

These Special Drum Type Heat Exchanger Units are so arranged that 3,600,000 B.T.U. of engine jacket water heat may be transferred to the sludge circulated to the digesters with excess heat dissipated to effulent circulated through the drum shell. The P.F.T.-Kraus Process for Activated Sludge Control is also used in South Bend.

Sound engineering, modern equipment and progressive city planning put South Bend among the leaders in cities seeking sound economic growth in our rapidly expanding economy.

Waste Treatment Equipment
Exclusively since 1893

PACIFIC FLUSH TANK CO.

4241 Ravenswood Avenue
Chicago 13, Illinois

PORT CHESTER, N. Y. • SAN MATEO, CALIF. • CHARLOTTE, N. C. • JACKSONVILLE • DENVER

LANDMARKS OF MUNICIPAL PROGRESS

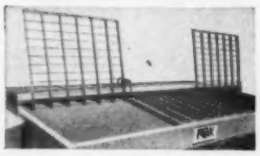
1959 SPECIFICATIONS for your files

FOX Mountable Materials Spreader

for sand • cinders • chips • salt • calcium chloride

MOUNTING

On or off any standard dump body in only 15 minutes. T-head fasteners, cranks and base adjustment channels make this possible. Truck is quickly freed for other work.



LOADING

Sturdy ⅜" rods make up cover grids that break up lumps. Allow only spreadable material to pass through. Increases spreading efficiency and prevents damage to mechanism.

DASH-MOUNTED CONTROLS

Fingertip control from inside cab makes operation a one-man job. Panel includes—spreader engine ignition and starter switches, volume regulation control and electric clutch switch. Sanding at speeds up to 40 MPH.

FEED AUGER

Heavy-duty feed auger eliminates feed aprons and chains, the source of most frequent breakdowns. Auger mounted on 4 Timken tapered roller bearings, completely shielded from abrasives.

SPINNER

Adjustable for 8 to 40 foot spreading widths. Works close to ground—spreads under parked and passing cars . . . ahead and beneath rear truck wheels for added traction.

GENERAL SPECIFICATIONS

Model	Box Length	Box Width	Weight Empty	Capacity Heaped* (yards)
8S57	8′	80″	2435	5
9S57	9′	80″	2610	5¾
10S57	10′	80″	2849	6½
12S57	12′	80″	3156	8

*4″, 6″ and 12″ height additions to box increases capacity—up to 12 cu. yds. on Model 12S57

ENGINE —Wisconsin air-cooled, 18 H.P. @ 3500 r.p.m. with starter, generator and enclosed drive reduction.

BODY —10 gauge prime steel. All welded construction with reinforcing ribs.

BEARINGS —10 Timken tapered roller bearings and two sealed ball bearings plus engine bearings.

AUGER —Heat treated alloy steel. 7″ O.D. progressive hard faced flights welded on 4″ O.D. tube. Mounted on 4 Timken bearings.

CONTROLS —Manual controls outside driver's window, standard. Optional electric remote control panel on truck dash.

SPINNER —18″ diameter. Height adjustable by 4 position lever for 8 to 40′ spread.

MOUNTING —Quickly attached without drilling holes or welding.

GRIDS —¾″ rods on 3″ centers. 4′ and 5′ sections.

SPECIAL USES —Ideal as Seal-coater for summer road work. Special attachment converts unit to a Trench Filler.

The Fox Materials Spreader will cut your labor, time and equipment expenses to the bone. A catalog . . . case history reports . . . even a no-obligation demonstration are yours for the asking. Write, call or wire collect today. After you put a Fox Spreader into service, we'll be able to add your name to our growing list of satisfied users.

FOX RIVER TRACTOR COMPANY
Road Machinery Division
Dept. R15, 1020 N. Rankin St. • Appleton, Wisconsin
Phone—REgent 4-1451

LANDMARKS OF MUNICIPAL PROGRESS...

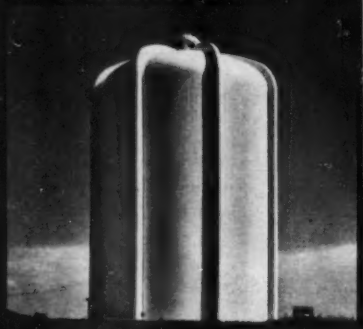
Modern Water Storage Tanks built by

CB&I

RADIAL-CONE
Standard sizes: 500,000 to 3,000,000 gals.

WATERSPHERE
Standard sizes: 25,000 to 250,000 gals.

ELLIPSOIDAL
Standard sizes: 15,000 to 500,000 gals.



ORNAMENTAL STANDPIPE
No limit to capacity

SPHEROIDAL—Standard sizes: 200,000 to 3,000,000 gals.

WATERSPHEROID
Standard sizes: 250,000 to 500,000 gals.

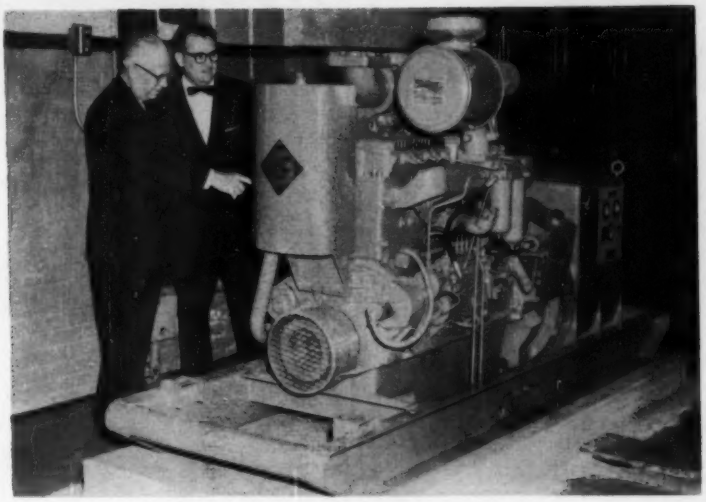
CHICAGO BRIDGE & IRON COMPANY

CBI

332 SOUTH MICHIGAN AVENUE
CHICAGO 4, ILLINOIS

OFFICES AND SUBSIDIARIES IN PRINCIPAL CITIES THROUGHOUT THE WORLD

M6C8



Harvey's Mayor William B. Kane (r) gets a rundown on the generator features from Allis-Chalmers' L. C. Daniels, manager of the engine-materials division.

No Interruptions Permitted

A new standby generator set in the water department pumping station assures our people that, come what may, water will keep flowing to the homes and commercial establishments of Harvey.

The unit is powered by the new 21,000-series diesel engine recently introduced by Allis-Chalmers and also used on the big HD-21 crawler tractor.

The unit has a 60-cycle, 480-volt, 187-kva generator capable of providing 150 kw of electrical energy. The set will provide uninterrupted electrical power in the event of a failure of the main generating unit. The entire setup is completely automatic.

The automatic start-and-stop of the generator is energized by a remote switch which in turn is actuated by a power failure. It automatically starts the generator sets and provides intermittent cranking cycles if the engine does not start on the first try.

In addition, as soon as the normal source of power has been returned, the generator set automatically stops, re-sets itself, and is ready to start in the event of another power failure.

The new set uses the A-C "brushless, broad range" main generator that was introduced earlier this year. The main generator, instead of the old-fashioned DC exciter, includes silicone rectifiers mounted on the heat sinks, converting the alternating current to direct current for charging the generator field.

The diesel engine uses a tempering tank which takes the place of a radiator and fan. The engine is cooled by raw water from the city's water supply. This water first circulates into the tempering tank and from there into the engine as soon as the water reaches its maximum temperature of 186°. It is then allowed, by engine thermostat, to flow back into the tempering tank and out into the drain.

HAROLD W. WETMORE
Commissioner of Public Property
Harvey, Ill.

A Deep Well to the Rescue

For years the City of Ukiah, Calif. and others in the area utilized 35-foot wells and seven- to eight-foot casings with approximately 3-inch perforations for their water supply. Although the quality of water is not the best, chlorination has made it usable.

About two years ago, when it became apparent that more water was needed, we discussed the possibility of drilling a deep test hole to determine the potential water supply at some greater depth. This type of investigation was entirely new to the area and the general idea was very definitely frowned upon by the City Council at that time. A search of available records showed no test holes had been drilled beyond approximately 100 feet.

After considerable discussion the City Council approved the drilling of a 500-foot test hole. At the 500-foot level we were still in alluvial deposit, and the contractor, because of personal interest, continued drilling to 625 feet at his own expense. The same alluvial deposit was present at that point when the drilling was discontinued.

In checking the well log, we noted a good-quality water-bearing gravel was consistent from 50 feet to 210 feet. Below 210 feet the possibility of obtaining water was remote. The hole was reamed and a 16-inch casing installed and gravel packed to a depth of 210 feet, with alternate 20-foot sections perforated from 50 feet to the bottom.

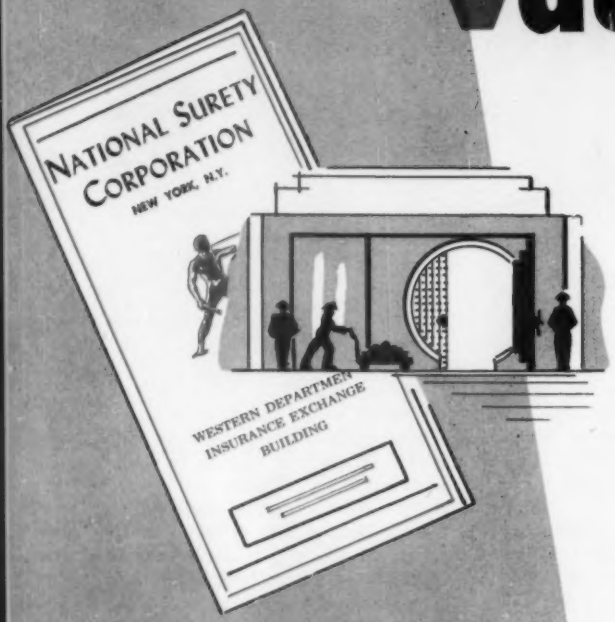
Based on test pumping, we installed a Jacuzzi vertical turbine pump, designed to produce 1,750 gpm at the 140-foot level. Drawdown has not exceeded 90 feet and no measurable effect on shallow wells within 50 feet of the new well has been noted. We are satisfied that this well draws upon a previously untapped supply and that we will experience no water shortage in the foreeable future.

LYELL C. CASH
City Manager, Ukiah, Calif.

Now another First!

DUNCAN PARKING

Vault Insured against



WORLD'S FIRST PARKING METER purposely created to combat the costly destruction of vandalism and theft of meter revenues. Exhaustive tests prove Duncan's V.I.P. is the answer to this serious ever-increasing problem which plagues almost every city, big or small.

Backed with Insurance — By Duncan

Further evidence that the Duncan V.I.P. represents the highest degree of security ever found in a parking meter, Duncan backs its V.I.P. with *written* insurance. With each V.I.P. meter order, Duncan issues a one-year insurance policy indemnifying the city against physical loss due to vandalism. This policy is issued and paid for by Duncan.

Mr. MAYOR and other
City Officials:
The burglar-resistive feature of
V.I.P. is so new, so important, you
should get the whole story first-hand.
Drop us a line on your letterhead
for a
DEMONSTRATION
See for yourself why V.I.P. and only
V.I.P. has the ability to discourage
vandalism.

Burglar-Resistive Housing

Contoured collection housing and vault-like door are precision constructed of malleable-cast iron recognized for extra toughness. This rugged combination offers dynamic resistive strength and protection to collected meter receipts. Inside door hinges greatly increase security by eliminating attempts of prying, chiseling, or hammering.

DUNCAN PARKING METER

Division of Motor Products Corp.

835 North Wood Street — Chicago 22, Illinois

METER PRESENTS THE V.I.P.*

Protection* vandalism

Tamper-Proof Bolted Door

This, too, is an entirely new concept in meter door security. Actuated by Duncan's exclusive submerged "mystic" lock (entirely hidden underneath cast iron door), the new double-bolt locking device is highly resistive to forceful attempts of entry through the lock area. When the V.I.P. door is locked—*it stays locked.*

Patented Sealed Coin Box

Duncan's famed Patented Sealed System of collection protection is also available with the V.I.P. meter. Collector cannot handle or see collected coins. Using but one sealed coin box, instead of two, Duncan's Patented System is the fastest and safest method of revenue collection ever devised.

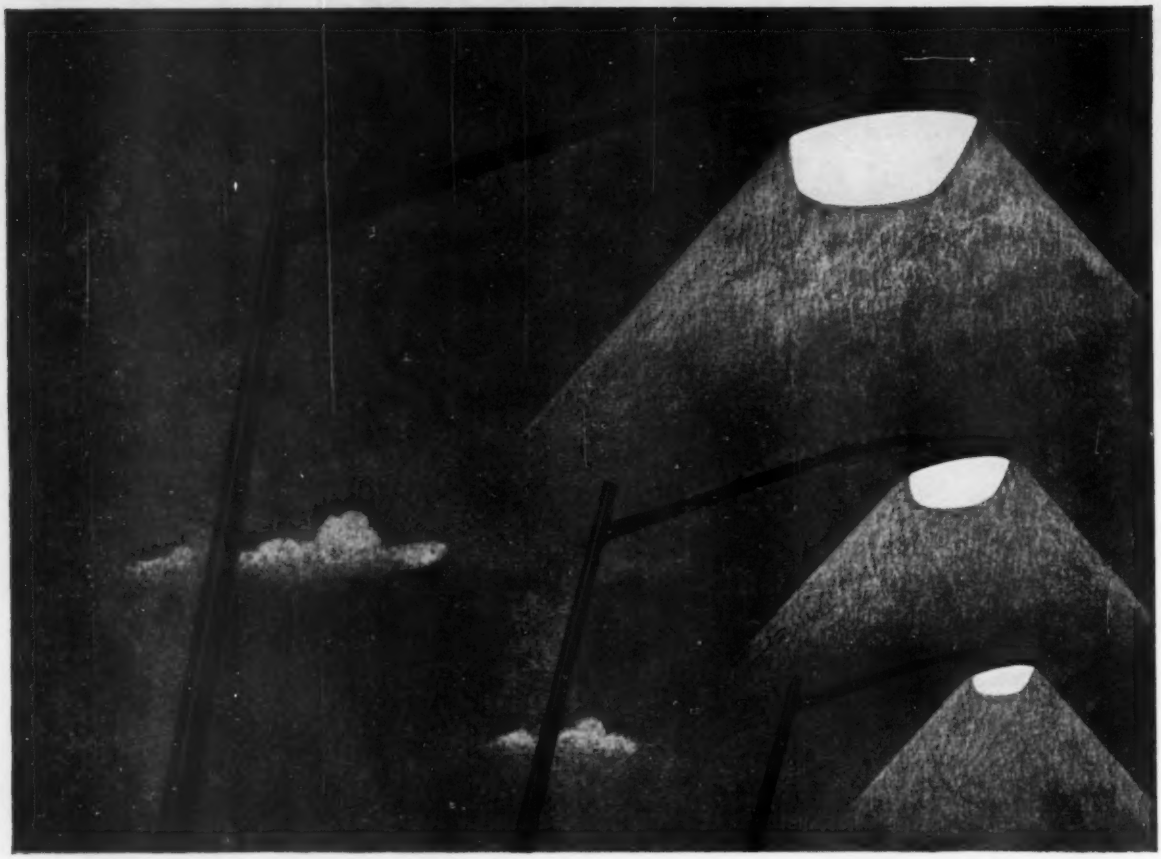
V.I.P. EXCLUSIVE
Submerged mystic-lock* increases security to the coin compartment. Non-exposure greatly reduces malicious lock area vandalism.

* TRADE MARK

The World's Leader in Parking Meters

Naugatuck KRALASTIC

Rubber-Resin



KRALASTIC conduit contributes to 43% savings

New York State Electric and Gas Corporation has learned how to install underground circuits for electric lighting faster, more economically, and with less disruption of landscaped property. A key to the operation is KRALASTIC.®

Used in place of conventional conduit, 20-foot lengths of KRALASTIC semi-rigid conduit are threaded over the cable, cut to length as needed, joined with a molded KRALASTIC slip fitting. All work is done above ground and the protected cable simply dropped into the trench. At driveways and similar obstacles, the conduit is snaked through a hole formed by a ⅝" rod and cone.

N.Y.S.E.& G. found 1½" conduit gave a saving of 15¢ per foot installed. Material costs were reduced further when conduit size was reduced to 1¼" and standard bases were fed by locally made long-radius bends. Additional savings resulted from the fact that conduit breakage during handling was eliminated, and KRALASTIC's light weight made it possible for a standard line truck to carry a full day's supply of conduit, eliminating the need for on-site storage and attendant problems.

Strength, light weight, and resistance to corrosive soils and chemicals are among the reasons why KRALASTIC has been steadily gaining popularity over both metals and other plastic materials not only for electrical conduit, but for municipal and home water service, well piping, salt water disposal, oil, gas, and chemical lines, radiant heating installations, piping applications by the hundreds.

Learn more of the many advantages KRALASTIC offers you. Contact your Naugatuck Representative or the address below today.

US RUBBER

United States Rubber

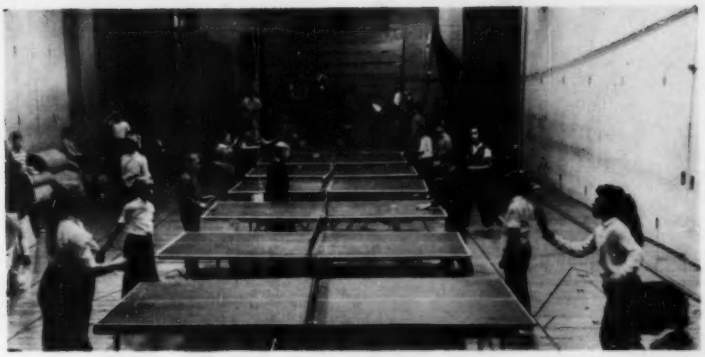
Naugatuck Chemical Division

1044K ELM STREET
NAUGATUCK, CONNECTICUT

KRALASTIC RUBBER-RESINS • **MARVINOL** VINYLS • **VIBRIN** POLYESTERS

Akron · Boston · Gastonia · Chicago · Los Angeles · Memphis · New York · Phila. · CANADA: Naugatuck Chemicals · Elmira, Ont. · Cable: Rubexport, N.Y.

Interurban Table Tennis Tourney



Some 110 competitors, 35% of them girls, matched skills in this suburban tournament.

Recently the Brookfield Recreation department was host to the monthly rotating Suburban Novice Table Tennis Tournament which attracted entrants from 15 nearby Chicago suburban communities. A total of 110 paddle pushers competed for 40 medal awards in five age categories varying from eleven and under to eighteen and older. Older, in this case, took us into the forties.

With eight tables busy, the meet ran for 5½ hours. Players had to win two out of three games in each flight to advance toward the finals in each age group. Boys and girls competed separately.

Several points are worthy of note in this tournament and should be considered by persons responsible for recreation programs in any American city. First, table tennis meets the demand for competitive activities that attract girls. To us it is significant that 39 of the 110 entries were female. Secondly, table tennis attracts a wide age variety. This in itself is proof that teaching youngsters the game in community programs provides a stepping stone to recreation in the future years. Thirdly, in a relatively small area, 110 contestants were able to meet and observe the rules of sportsmanship and fair competition without confusion or hurt feelings. Winners learn to win gracefully, knowing that in the next meet their luck may change. Losers accept defeat and return to try again in another tourney. These valuable lessons are not as easily learned in team competition where someone else may be blamed for failures. Here, their degree of success lies at their own doorstep.

Our meet paid its own way. We charged these nominal registration fees: 50 cents for each of the four classes for those under 18 and $1 for adults.

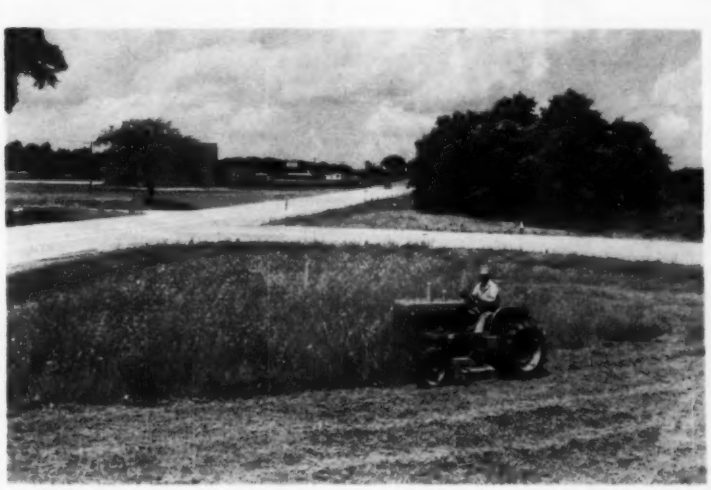
Registrations for pairing were made in advance. Since the meet started at 1:00 p.m., registration for midgets was closed at 12:55. Registration was then opened for all other classifications with emphasis on the juveniles who were scheduled next, and so on through all categories.

As tournament hosts we furnished all equipment for play except the paddles. We used a public address system for assigning the tables and recognizing winners. Other activities were kept away from the competition area. Advance publicity to the invited schools and communities aided attendance.

WILLIAM H. RADKE
Recreation Superintendent
Brookfield, Ill.

Weed Control Can Be Important

In suburban areas where the sprawl hasn't yet "sprawled" weed control becomes a continuing task. Here is an Allis-Chalmers utility tractor with a Danco mower sprucing up an area north of Glendale, Wis. The mower is manufactured by Danuser Machine Works, Tulsa, Okla.



IT'S NOT THE INITIAL COST
it's the upkeep...
Competitive bidding on water works projects has brought the price of comparable pipes of different specified materials to a nearly common level. Today, the important consideration for the buyer is not so much the first cost as the maintenance charges which continue throughout the life of the pipeline.
In any such comparison, the superiority of LOCK JOINT CONCRETE PRESSURE PIPE is demonstrated by the experience of hundreds of municipalities. For example, records of one of the country's largest industrial cities indicate only two minor maintenance or repair charges in the last 10 years against more than 18 million inch feet of LOCK JOINT CONCRETE PRESSURE PIPE in its water works system.
Your city, too, can virtually eliminate maintenance expense, and save many times the initial installation cost with Lock Joint Concrete Pressure Pipe.
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LOCK JOINT PIPE CO.
East Orange, New Jersey
Sales Offices: Chicago, Ill. • Columbia, S. C. • Denver, Col. • Detroit, Mich.
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Pressure • Water • Sewer • REINFORCED CONCRETE PIPE • Culvert • Subaqueous

Acres of roof area, paved streets and walks increased the runoff beyond the capacity of a flat drainage ditch. Three storage reservoirs, such as that shown in the foreground of the picture above, solved the problem. Pumphouse and equipment of the last two reservoirs built are in view as shown in the construction picture (right).

Reservoirs Solve Tough Drainage Problem

The satisfactory solution of a tough drainage problem directly influenced a recent annexation by the Village of Fraser, Michigan. The annexation consisted of 460 acres in the Detroit metropolitan area comprising over 2,000 homesites of which 1,500 have already been built upon.

With pavements and walks paved, plus ever increasing roof area, drainage in this flat area posed a serious problem. The soil is a heavy impervious clay drained by an open ditch having little fall to a river several miles away.

The solution, worked out by Albe E. Munson of Munson Associates, Roseville, Mich., landscape architects and site planners, consists of a system of three reservoirs designed to hold stormwater for later removal at a rate below the capacity of the drainage ditch.

Each reservoir is about an acre in area and is excavated to a depth of 11 feet below the lowest catch basin. All storm sewers within the development area discharge to the reservoirs. Each reservoir has its own pump station and outfall line to the drainage ditch, which has sufficient capacity to empty the entire reservoir within a 12-hour period.

Pump Stations

The pump stations contain two Peerless pumps, one for standby, with electrode controllers. Operation of both pumps, including the emergency throw over should the first pump fail to start, is automatic. No pump failure has been reported in three years of service.

The pumphouse for the first reservoir was located some distance from the reservoir, extends only two feet above grade, and is concealed by plantings. For the succeeding pumphouses, Munson prevailed upon the developers to build them in full view at the reservoir site with pumps clearly visible. He contended there was a slight saving in cost and a decided psychological value in that the pumps indicated the purpose of an otherwise questionable structure and would give would-be homesite purchasers confidence in the property.

While the ditch lacked capacity to take run-off from heavy rainfall, the reservoirs were designed for that purpose. The pumps in turn empty the contents of the reservoirs into the ditch at a rate below ditch capacity, thus eliminating flooded streets, basements or drainage ditch.

Had the request for annexation been made before the drainage system proved itself it probably would have been denied, for the Village of Fraser would not have been ready to take on the expense of solving a tough drainage problem.

EDGAR BECK, *Mayor*
Fraser, Mich.

N. J. Sewage Programs Up 250% in Ten Years

Municipalities and industries in New Jersey spent 5½ times as much between 1949 and 1958 to prevent pollution of New Jersey's streams and waters as they spent between 1939 and 1948. Allowing for inflation, the work still represents 2½ times that of the previous decade.

This was reported recently by Dr. Daniel Bergsma, New Jersey State Commissioner of Health, in a special report on the stream pollution control during the years in which he headed the New Jersey State Department of Health.

The report shows that industries and municipalities in New Jersey spent more than $278 million between 1949 and 1958 to prevent stream pollution. This compares with approximately $49 million for the previous decade and the $57 million for the decade before that.

The report shows that 30% of all existing sewage treatment plants in New Jersey were completed between 1950 and 1958.

BIG AD CAMPAIGN WARNS OF GROWING WATER PROBLEM!

Urges local support for better water systems

CAST IRON PIPE RESEARCH ASSOCIATION OFFERS LOCAL PLAN-OF-ACTION BOOKLET

Here's help for you and everyone else directly concerned with the supply, treatment and distribution of water—help that will acquaint the people in your town with the vital importance of this growing problem.

On the opposite page you see the second in a series of advertisements, this one appearing in April *Reader's Digest*. Placed by the Cast Iron Pipe Research Association, these striking advertisements point out to Mr. and Mrs. America how much we depend on a good water system and why we can no longer take it for granted.

Similar advertising will appear regularly in *U. S. News & World Report, Nation's Business, Better Homes & Gardens, American Home* and *Sunset* magazines to carry this public service message to millions of civic leaders and homeowners.

FREE LOCAL HOW-TO-HELP BOOKLET

These ads offer a free booklet telling about the water problem. It shows how responsible citizens can acquaint themselves with the needs of their community. It also gives a step-by-step outline of action, telling how they can help their officials extend and improve the local water system through more adequate rate structures or financing.

Let us send you a free copy of this new booklet. Write to Thos F. Wolfe, Managing Director, Cast Iron Pipe Research Association, 3440 Prudential Plaza, Chicago 1, Ill.

THREE REASONS WHY* CAST IRON PIPE IS *AMERICA'S GREATEST WATER CARRIER:

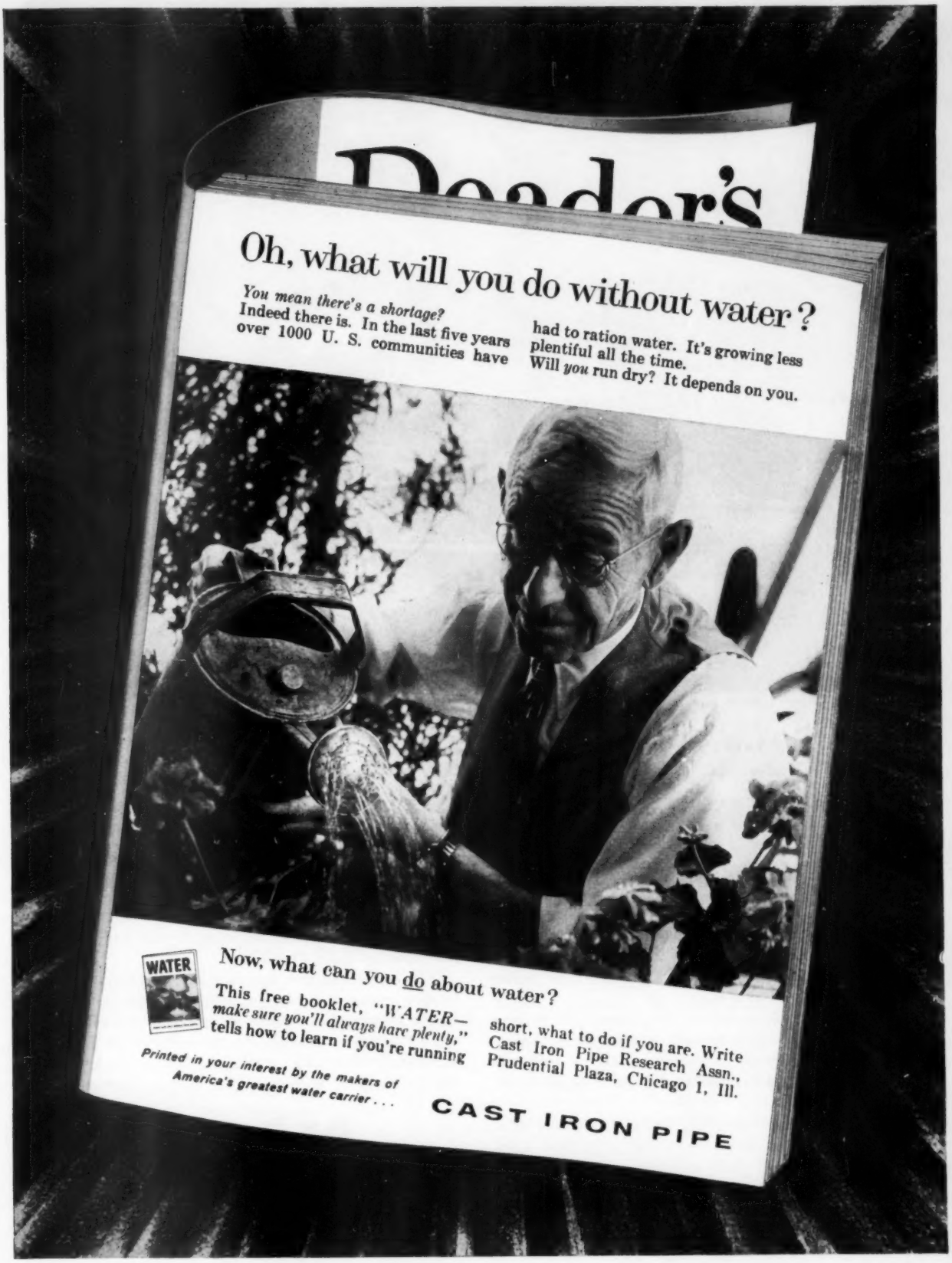
1. More miles of underground cast iron water mains are now in use than of all other kinds of pipe combined.

2. More miles of cast iron water mains are now being purchased and laid than of any other kind of pipe.

3. Impartial surveys prove that today's water utility officials and consulting engineers prefer cast iron pipe for underground water distribution by an overwhelming majority.

CAST IRON PIPE

THE MARK OF THE 100-YEAR PIPE


Reader's
Oh, what will you do without water?
You mean there's a shortage?
Indeed there is. In the last five years over 1000 U. S. communities have had to ration water. It's growing less plentiful all the time.
Will you run dry? It depends on you.
WATER
Now, what can you do about water?
This free booklet, "WATER—make sure you'll always have plenty," tells how to learn if you're running short, what to do if you are. Write Cast Iron Pipe Research Assn., Prudential Plaza, Chicago 1, Ill.
Printed in your interest by the makers of America's greatest water carrier . . .
CAST IRON PIPE

Peerless performance of two Mack 750-gpm pumpers convinced Palmyra's Citizens Fire Company No. 1 to add this new Model B-95 1000-gpm unit to its equipment. Radio-equipped, this 276 hp Thermodyne-engine-powered Mack pumper is the latest acquisition in a Mack program started in 1950.

Palmyra adds another dependable "custom-built" MACK

Large or small, paid or volunteer, every fire department needs the dependable performance of custom-built Mack fire apparatus. And there's no reason why they can't have it.

Every Mack apparatus is custom-built to your specific needs—cab-forward or conventional, automatic or standard transmission, air or hydraulic brakes, and the body style engineered expressly for your department.

Citizens Fire Company, Palmyra, Pennsylvania, for example, has just taken delivery of its third Mack pumper, a Model B-95 1000-gpm unit. Powered by the great Mack 276 hp Thermodyne® engine, this stalwart Mack model is quick starting, easy handling and a solid worker, especially when it must pump at full capacity—hour after hour.

Why not investigate the addition of steady-performing custom-built Mack apparatus to your department? Performance records show Mack apparatus to be the most dependable on the road. Mack Fire Apparatus, Allentown, Pennsylvania. In Canada: Mack Trucks of Canada, Ltd., Toronto, Ontario.

7134

MACK
FIRST NAME FOR
FIRE APPARATUS

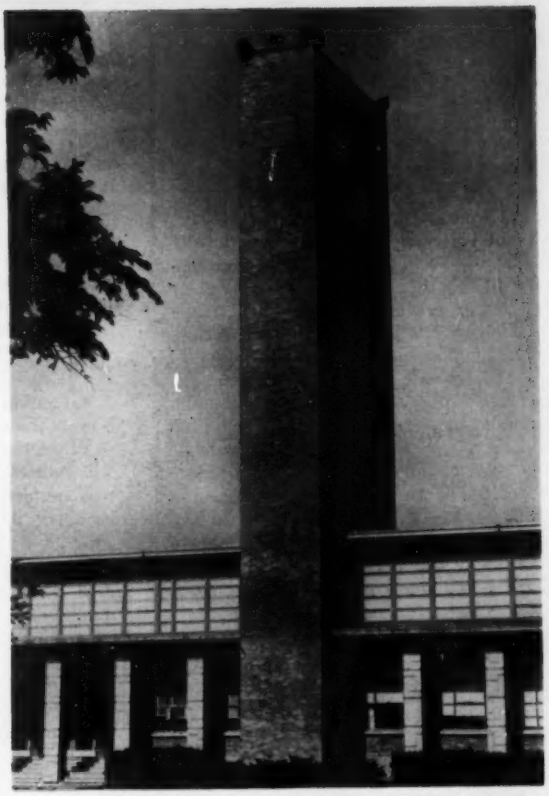
COMPLETE LINE OF PUMPERS—500 to 1250 GPM . . . SQUAD AND HOSE WAGONS . . . AERIALS 65′ TO 144′ . . . COMBINATION LADDER TRUCKS

Salina Hears A Voice Instead of Sirens

A complete system of loudspeakers, microphones and other electrical equipment has been installed in Salina, Kans., to provide disaster warning and instruction for the 60-square mile area encompassing the city, according to Ed F. Grigsby, western sales manager of Altec Lansing Corp., Anaheim, Calif. The principal advantage of voice warning over sirens. is that it permits the relaying of instructions before or during an emergency. "Citizens therefore are not only warned of danger, but may also be told what the danger is and what precautions should be taken." An oscillating or "beep" signal alerts the populace, then voiced instructions follow.

The central distribution station is located on top of the Salina City Hall. This system consists of four multicellular "theatre type" horns or loudspeakers that point in four different directions for extensive coverage. Ten additional stations are scattered throughout the city, installed on top of buildings, water towers and other high structures. These employ four smaller loudspeakers pointing in different directions. Each station can be operated independently or in any combination and each has emergency standby power equipment.

According to Grigsby, Salina Civil Defense Director A. Marie Webb said that the Altec demonstration of the voice warning system, given in December of last year, convinced the Salina City Council of the superiority of voice warning. "In fact," said Grigsby, "Mrs. Webb said that tests were made during a raging blizzard and still the phrases spoken could be repeated by persons four miles away."



Loudspeakers atop City Hall, central distribution station of Salina's disaster warning system.

Red and Blue Lights on Fire Apparatus*

1. *May red lights be displayed on fire apparatus returning from a fire?*

Yes. They may be used at *any* time by fire apparatus and ambulances. This means coming or going and includes drills, etc.

2. *How many red lights may be displayed on a motor vehicle of an authorized fire department officer?*

There is no limit.

3. *How many blue lights may be displayed on a motor vehicle operated by an active member of a volunteer fire department or company?*

One only. The regulations on this subject say one light either steady or flashing.

4. *What privileges are given a volunteer fireman when he displays a blue light?*

None. The light is merely for identification purposes.

5. *May a volunteer fireman who is authorized to display red lights also display a blue light at the same time?*

Yes. Both may be displayed on properly authorized motor vehicles.

6. *Must a fire apparatus stop upon overtaking a stopped school bus?*

Yes. If the bus is stopped and is displaying signs and flashing red lights, all traffic must stop in either direction.

7. *May fire police be used to direct traffic on the return of apparatus to fire station?*

Yes. Providing an organized squad has been formed and the necessary oaths filed. A duly authorized member of the fire police has the powers of a peace officer when the department or company is on duty.

8. *May a squad car be used for advertising fire department events if the car is a normal piece of fire equipment?*

Yes. Providing the vehicle is a bonafide fire vehicle. If not, there would be no right to do so without securing regular motor vehicle registration.

ARNOLD WISE
Motor Vehicle Bureau, Albany, N. Y.

* Mr. Wise, associate attorney for New York State's Motor Vehicle Bureau, explains his state's regulations on this subject.

Snapping Lost Dogs

Dog catchers in Stockton, Calif., are armed with cameras, the International City Managers' Association reports. Dogs running loose—against the city ordinance—are photographed, the picture developed on the spot, and the neighborhood canvassed for the owner. In the first two weeks of photographic dog catching, 16 of 19 cases against the dog owners were handled summarily. It is unnecessary to take the dog to the pound, saving the city the cost of housing and feeding it. Public reaction has been good.

States Indicate Desire To Aid Cities

Some states apparently are showing signs of dropping their traditional role of exploiters of cities and are offering a little help.

Sixteen governors urged legislatures this year to seek solutions to metropolitan problems. At least eight state legislatures received reports on key local government problems this year and New York recently set up an Office of Local Government to extend state-local cooperation.

Minnesota's legislature received a commission report on municipal annexation and consolidation which observed that suburbs incorporated before they could provide adequate services were an unfair burden on the central city. Services to these suburbs sometimes had to be provided by the county, sometimes had to be paid for by the city taxpayer as well as the suburbanites, or, as with sewage disposal, services provided by the suburbs themselves were inadequate and threatened the whole urban area with pollution.

Minnesota's legislature was urged by its study commission to ease annexation methods through a continuing commission which would hear requests for adding or taking away from a municipality, though in most cases a vote of those affected would be required.

On putting together more efficient areas for administration, Iowa's Legislative Research Bureau recommended this year that counties be allowed to work together, even administering joint programs through a single office headed by a single official. Several states already give counties this power.

Urban Growth

North Carolina's General Assembly organized a study commission of municipal governmental needs and noted that:

- **building and zoning codes may be inadequate or not enforced.**
- **traffic plans are not coordinated with nearby municipalities.**
- **industrial locations are poor.**
- **water supply is inadequate.**

All this, the study group concluded, affects the entire urban area and endangers the minimum standards of health, safety and welfare.

Air Pollution Control Notes

War On Particles

A war on tiny particles of air pollution was called for recently by Dr. Leslie Silverman of Harvard University, at a seminar in New York City. Dr. Silverman said that small particles, such as magnesium and vanadium, occur as trace materials and that others occur as organic compounds that can interact with each other and with sulphur gases and the atmosphere to produce acid mists, a potential hazard to health and vegetation. The problem, Dr. Silverman stated, can be solved by improvement of available techniques, such as electrostatic precipitation, filtration, centrifugation and washing.

Studies Intensified

Beginning July 1st, the United States Public Health Service launched a multi-pronged study of the automotive exhaust problem. In addition to surveying the problem from the point of view of health, the USPHS will examine eye irritation, geographic exhaust intensity, appraisals of new materials being added to gasoline, engineering research into the chemistry and control of exhaust.

Universities Provide Courses

The increasing recognition being given to the problem of air pollution by the country's institutions of higher learning is being demonstrated again this year. The University of Massachusetts at Amherst conducted a course in air poliution, from August 3rd through 14th, as part of the United States Public Health Service's Summer Training Institute. From June 14th through 19th, Pennsylvania State University held an Engineering Seminar on Electrical Precipitation.

A Change in the Weather

At the annual meeting of the National Academy of Sciences, Dr. Bert Bolin of the University of Stockholm stated that within 40 years the amount of carbon dioxide in the air may have increased from 25 to 30 per cent above the level at the time when man began using fuels. The effect on climate might be radical, he said. Dr. Bolin said the increase would be due to the burning of fuels by industry and for transportation.

Rules Published

The Air Pollution Control District of Riverside County, California, has published its Rules and Regulations. Information may be obtained from the District, 3606 7th Street, Riverside.

Report Issued on Los Angeles

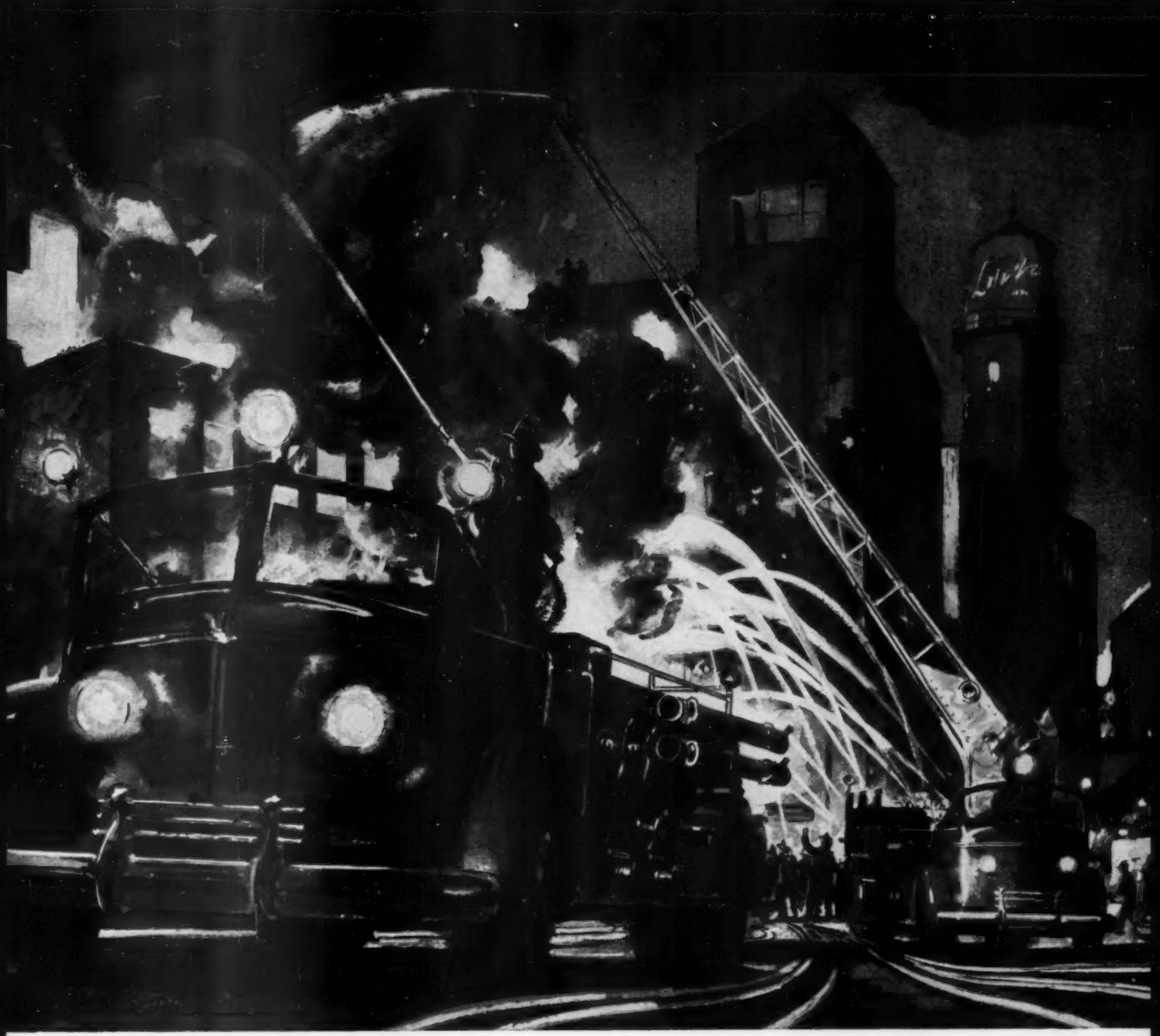
The Air Pollution Foundation has issued its Fifth Technical Report, covering various aspects of the relationship between automobile exhaust and the air pollution problem in Los Angeles. Copies are $3 and may be obtained from the Foundation, 2556 Mission Street, San Marino, California.

Control Measure Defeated

A measure to give the State of West Virginia a stronger air pollution control law was defeated in a Senate committee, after it had passed the House of Delegates. The bill would have expanded the power of municipalities in the state to control air pollution.

Toronto Pollution Declines

Air pollution in heavily populated industrial areas of Metropolitan Toronto decreased 29 per cent during the past year, it was reported as the result of a survey made by the Metropolitan Department of Works.



Behind the fire fighters...water wells by Layne

Municipal water requirements are as varied as they are vital. The reliability of a water source is foremost when human lives and happiness are at stake.

For over 75 years, Layne & Bowler, Inc. and its associate companies have pioneered and specialized in the development of ground water. Their only concern—their only business is water.

Layne water wells and pumps circle the globe. Various conditions and problems have been met and solved. This know-how, acquired during three quarters of a century of experience, results in efficient, economical wells—the basis of most municipal water systems. Layne wells provide the good beginning.

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General Offices and Factory — Memphis 8, Tenn.

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Gentlemen: Please send me bulletin No. 27.

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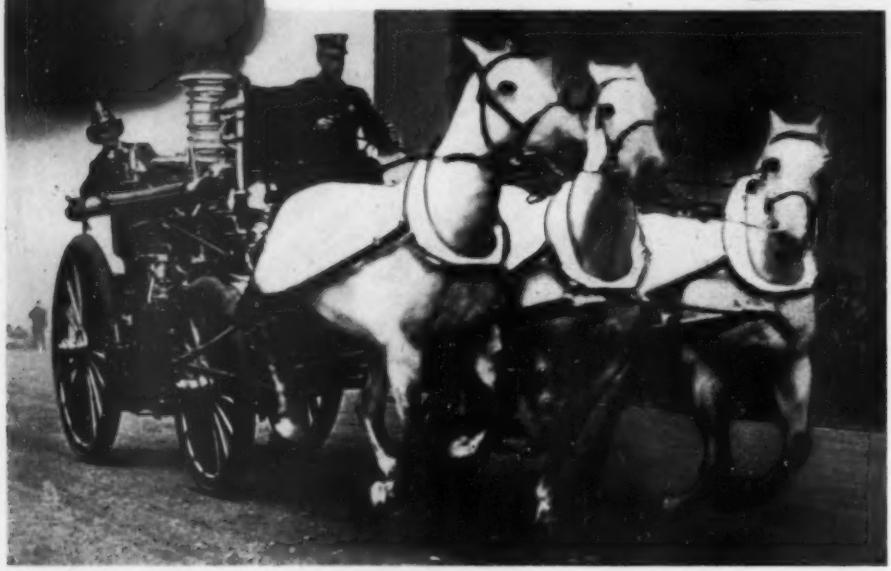
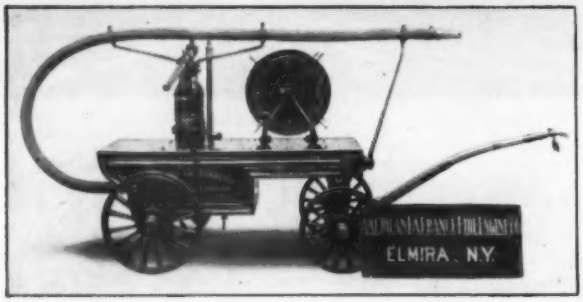
The 125th Anniversary

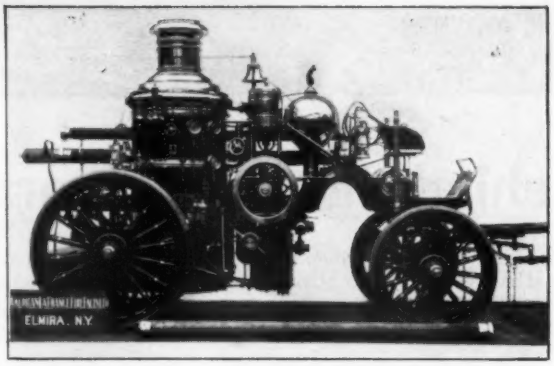


We have chosen Fire Prevention Week for celebrating our 125th year of cooperation with the fire service. Since 1834 we have made many changes and improvements in our fire engines. Briefly illustrated are types of fire engines and ladder trucks from the earliest to the newest modern fire fighter. The famous three horse hitch and steamer symbolizes a glamorous era in the fire service history. We built our last steamer in 1914.

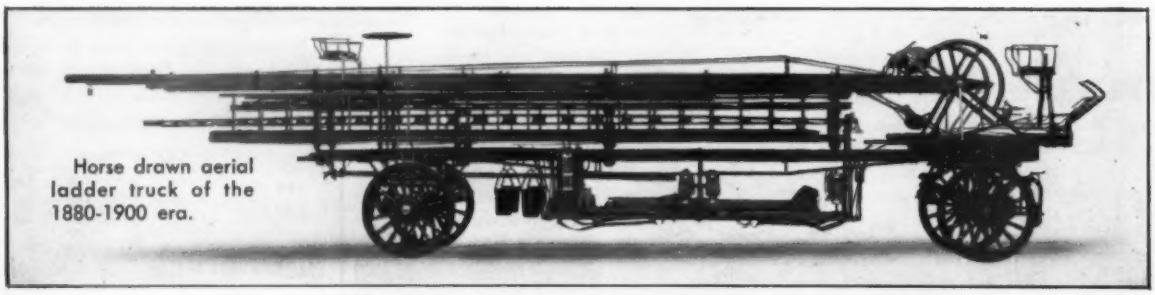
Photo courtesy
L. Schack



One of several types of hand drawn, hand operated pumper or "hand tub" we built from 1834 to 1906. The pump capacity ranged from 200 g.p.m. to 500 g.p.m. at 100 p.s.i. pressure. Many of the "tubs" show skill and craftsmanship on the walnut and maple inlay work on mahogany and other wood.

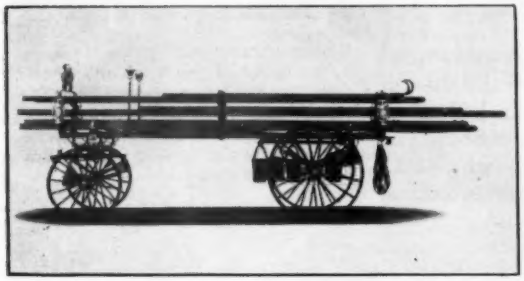


The "Metropolitan" steamer famous the world over. One occupies a place of honor in the Smithsonian Institute.

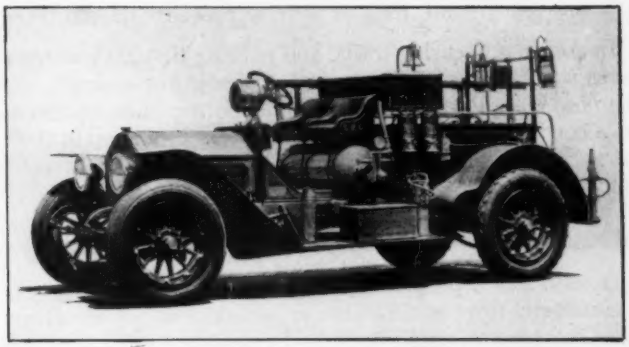


Horse drawn aerial ladder truck of the 1880-1900 era.

# of AMERICAN LAFRANCE

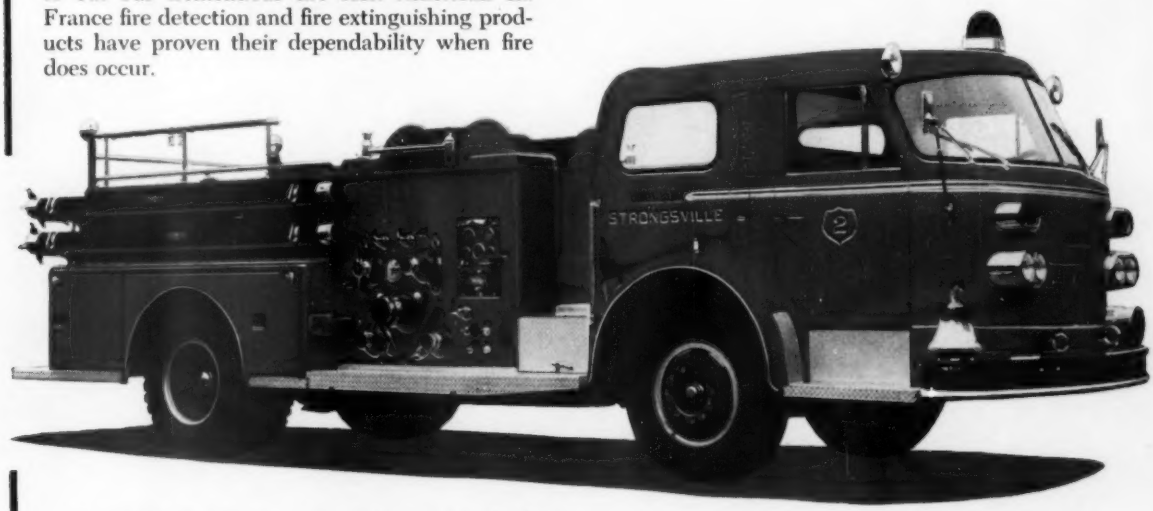


Hand drawn ladder truck. This type has evolved to our modern 4-wheel service aerial ladder truck.



The first production motorized American LaFrance fire engine was shipped to Lenox, Mass. in 1910. It is still in the fire department at Lenox.

Experience has proven that observance of fire prevention rules will save thousands of lives and keep many jobs for full employment. We sincerely wish the program of education to continue to cut our tremendous fire loss. American La France fire detection and fire extinguishing products have proven their dependability when fire does occur.



Our 125th Anniversary year sets new standards of Excellence and Leadership in the 900 Series fire engines. Experience in building the cab-ahead-of engine design for 12 years provides new features for greater performance and safety; less maintenance, greater utility and more efficient operation. Write for 900 Series brochure for full details.

AMERICAN LAFRANCE

A DIVISION OF STERLING PRECISION CORPORATION
ELMIRA, N.Y., U.S.A.

LaFrance Export Corporation *Elmira, N. Y.*

LaFrance Fire Engine and Foamite Limited
Toronto 9, Ontario, Canada

in Cleveland, Ohio, NEW TRANSIT STATIONS HELP

Feeder bus lines, new station parking lots and frequent schedules are three reasons why rapid transit is keeping 5926 automobiles from choking the streets and parking lots of downtown Cleveland. Surveys show that 70% of the present riders who leave their cars in station lots are new users of rapid transit.

So successful is the coordination among bus line, parking lot and rapid transit, that the Cleveland Transit System recently added two new stations —West Park and Triskett. Already this 1.9-mile extension is largely responsible for the 21.4% increase in the System's rapid transit rider volume over a 3-year period. Here is positive proof that rapid transit works.

In addition to easing traffic and parking tie-ups downtown, rapid transit saves significant travel time and expense. For example, from the area of the new West Park Station, automobile trip time has been clocked under *ideal* conditions of weather and traffic at 22 minutes in the rush hour. The same trip on rapid transit, regardless of weather or traffic jams, is 15 minutes—a saving of 30% in time alone. Add to this the personal fatigue of driving, the cost of automobile maintenance and parking, and you have the reasons why so many more Clevelanders are riding on rapid transit!

If your city is plagued by traffic snarls, inadequate parking and loss of business and revenue, it's time to review your public transportation facilities. Chances are, you'll find rapid transit is the answer to bringing people and business back to your urban centers. J-15014

During inbound morning rush hours, 17 trains running on frequent schedules handle approximately 15,000 riders. Expansion plans now under way to add over 1600 parking spaces at West Park and Triskett Stations will increase this total considerably.

YOU CAN BE SURE...IF IT'S Westinghouse

WATCH "WESTINGHOUSE LUCILLE BALL-DESI ARNAZ SHOWS" CBS TV FRIDAYS

KEEP 5926 AUTOS OFF THE STREETS!

Windermere Terminal. Four bus loops provide easy transfer to and from rapid transit. Four parking lots contain a total of 947 automobile spaces.

West 117th-Madison Bus Terminal adjacent to station provides quick, convenient transfer to and from rapid transit trains. Facilities such as these cut commuting time by 30% and more . . . help keep autos from strangling downtown traffic.

West Park Station. Fifteen hundred parking spaces will be increased to 2500 spaces in the near future. Note special drive-through area for pickup and dropoff of passengers driven by auto to station. Connecting bus lines provide continuous transportation to all parts of the city from all stations.

Sharply embossed letters and borders add rigidity, prevent specular reflection, increase angle visibility, reduce vandalism. Baked enamel finish is highly rust resistant . . . adds extra years of life to both plain and reflectorized signs.

- S. G. ADAMS COMPANY, ST. LOUIS 3, MO.
- GOPHER STAMP & DIE CO., ST. PAUL, MINN.
- GRIMM STAMP & BADGE CO., ST. LOUIS, MO.
- LYLE SIGNS, INC., MINNEAPOLIS, MINN.
- MIRO-FLEX CO., INC., WICHITA, KANSAS
- N.S.E. SIGNS & STAMPINGS, B'HAM, ALA.

Today, as for the last thirty years, DIE EMBOSSED signs are the mark of highest quality. In state after state . . . uniformity in size, color and wording is maintained by the manufacturers of DIE EMBOSSED signs. Protect your children's lives with quality signs that are known and readily identified by motorists in every state throughout the nation.

Die Embossed Signs *are your* Best Buy

Georgia Develops City-County Planning

Before 1947, coordinated planning between cities and their surrounding towns in Georgia was only possible by means of a "gentlemen's agreement." Under an oral agreement, planning commissions in adjacent areas could agree to work together for a common goal. This type of arrangement, however, was not used extensively because all too often vested personal interests objected.

Moreover, the rural people of Georgia thought that zoning in general was a restriction of their right to use their property freely. Legislation and education were needed. Government, education, and a Georgia utility responded to this need.

Enabling Legislation

In 1947 the Georgia legislature passed a new General Planning and Zoning Enabling Act which permitted cities and counties to set up joint planning commissions. Such an alliance of city and county planners is considered by many to be the best device for coordinating a city's expansion into its suburbs.

This step was aided by the Georgia Power Company and professors in colleges and universities throughout the state. The utility, in league with the educators, began to inform the general public of the advantages and best methods of planning. The School of City Planning at the Georgia Institute of Technology was established. Coordinated planning resulted.

Since 1947 practically all new planning bodies which have been formed in the state have been joint city-county commissions. Of the 40-odd city-county commissions that existed in the U. S. in 1953, Georgia had three. By 1958 the number in Georgia had increased to 39.

The attitude of the rural public has changed, too. In many places where planning commissions have not yet been formed, citizens are actually requesting that they be formed.

The Georgia Tech School of Planning has produced real leadership in the planning field.

Macon's coordinated expansion into Bibb County is a good example of the work that has been done. Mr. William Lundberg, director of planning in DeKalb County and past director of the Macon-Bibb County Planning Department, said that if Macon and Bibb County had not been able to form joint planning commissions, a technical staff to advise for the planning of Bibb County would probably not have been possible.

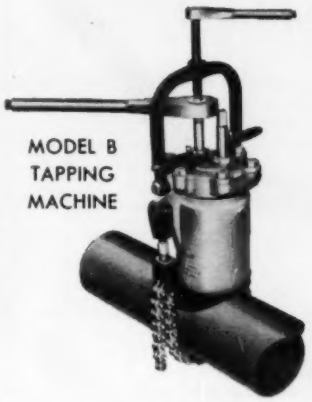
HAL A. DAVIS
DeKalb County
Planning Commission
Decatur, Ga.

Las Vegas Communications Center

The Las Vegas City Manager, A. H. Kennedy, inspects the new Gamewell equipment in the fire alarm dispatch office, the heart of the city's communications center. The office is the hub of a network of 126 fire alarm boxes (over 100,000 feet of city-owned and installed underground cable) connected also to five fire stations, civil defense warning and communications. Coordination of all public service equipment during a local disaster is also taken care of here.

A Symbol of Quality
FOR
WATER
SERVICE
PRODUCTS

HAYS



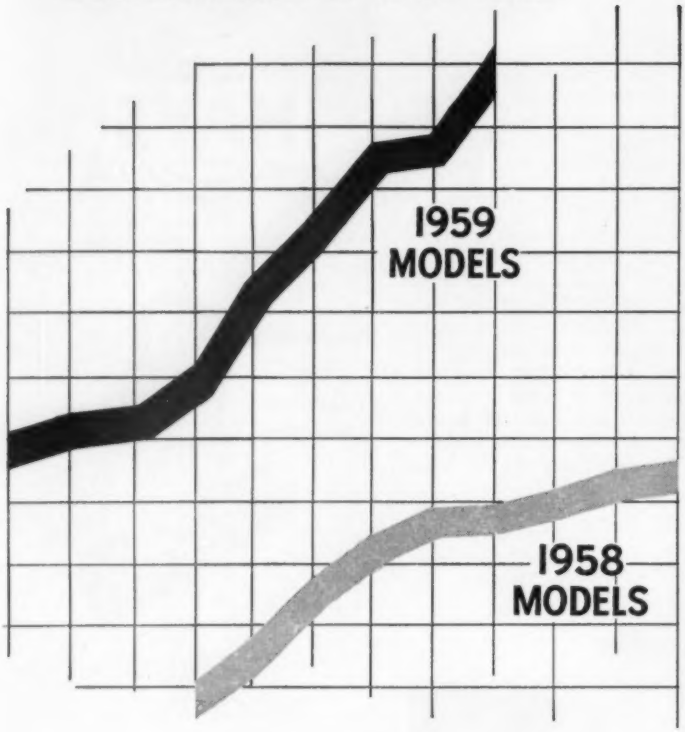
TAPPING
MACHINES

One of a complete line of Water Service Products

GENERAL PRODUCTS DIVISION
HAYS MFG. CO.
ERIE, PA.

The BIG SUCCESS

1959 FORD SUPER DUTY TRUCK SALES MORE THAN DOUBLE THOSE OF LAST YEAR



1960 FORD SUPER DUTIES

SKYROCKETING SALES OFFER ADDED TESTIMONY TO THE TOUGHNESS AND RELIABILITY OF FORD "BIG V'S"— *NOW THEY'RE MORE DURABLE, MORE FLEXIBLE THAN EVER!*

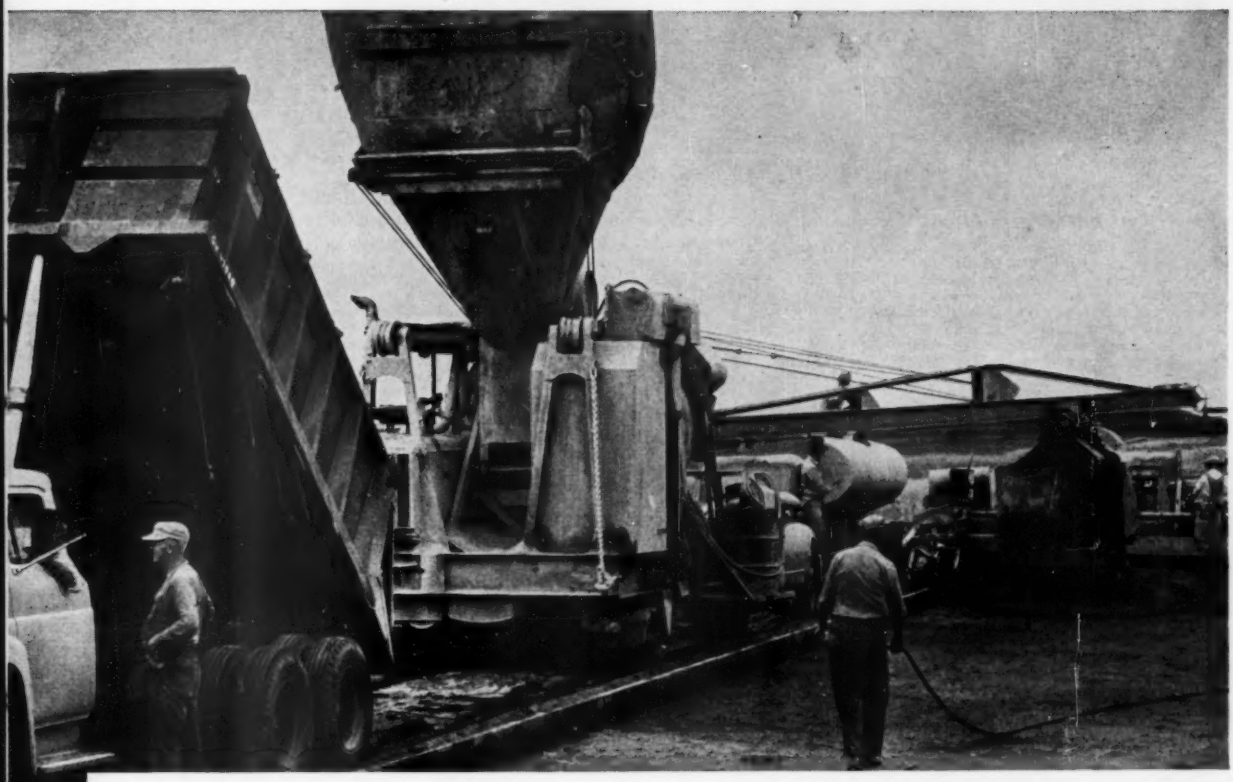
Ford's increase in sales of Super Duty Trucks, while impressive in itself, by no means tells the whole story. Over half of the 1959 unit sales were the result of repeat orders from operators like Trucking Contractors, Inc., who bought because the Ford "Big V" provided the kind of performance and durability needed for their work.

And for 1960, the Ford Super Duties offer additional refinements designed to provide an even greater degree of dependability. Bigger optional axles and increased GVW's permit greater payloads and more profitable operation. Automatic radiator shutters to keep the engine temperatures within the most efficient operating range, submerged-type electric fuel pump to prevent vapor lock, and redesigned wiring for longer, more dependable operation are but a few of the improvements which add to the performance and durability of these units.

The changes offered for 1960 were tested and evaluated by America's foremost independent automotive research organization. The certified results of the studies by this impartial firm (name available on request) provide proof that Ford's Super Duty Trucks are even more dependable.

- **Certified Durability through closer temperature control!** Independent research engineers certify that Ford's thermostatically controlled radiator shutters kept water temperature between 168° and 188° in severe mountain grade operation. The test truck with shutters blocked open

of the Big Truck Field



"Tried 8 in '58—bought 20 more in 1959," says Curtis E. Brost, President, Trucking Contractors, Inc. "In 1958 we bought 8 Ford T-850's with lightweight chassis options and specially built 5-batch bodies which gave us a full extra batch per truck. A 5-batch load is a real strain on the truck when you consider we're 'running the ditches' on this highway paving job in North Dakota. These T-850's worked out so well that we ordered 20 more in '59. Our Ford Tandems with the 477 engine give us good mileage and the drivers are real happy with them. It's a rough go on trucks with soft footing and dust so bad we have to drive with headlights on. Despite such operating conditions, downtime has been negligible and these '477' Fords have given us less trouble than other trucks we have operated."

with Certified Durability

under same operating conditions had a temperature range from 102° to 181°. The temperature variation of only 20° with shutters means less expansion and contraction in engine block and cylinder heads. Higher temperatures with radiator shutters permit leaner fuel-air mixtures with less possibility of raw gas washing down cylinder walls. Warm oil circulates more freely, reducing internal friction. All these factors contribute to longer engine life.

- **Certified Dependability with longer-lived electrical system!** Ford's '60 improved wiring harness and the 1959 wiring harness were subjected to shaker table tests plus constant exposure to oil and water vapors and temperatures of 200°. Certified results prove that the greater resistance to deterioration by heat, oil, water and abrasion obtained with the 1960 wiring harness more than doubles wiring harness life.

- **Certified Reliability with Ford's submerged-type electric fuel pump!** Dynamometer tests of engines with submerged-type electric fuel pump and conventional mechanical type showed that vapor lock was non-existent with Ford's electric pumps at temperatures up to 200°, whereas incipient vapor lock with mechanical pump resulted in a power loss of 9% at an underhood temperature of 200°.

Test results like these plus the experience of satisfied users are important but that is not all. For 1960, the Super Duty line has been broadened to provide even more flexibility in power train options. Get the facts from your Ford Dealer!

FORD TRUCKS COST LESS

LESS TO OWN . . . LESS TO RUN . . . BUILT TO LAST LONGER, TOO!

FREE CATALOGS

These Catalogs Will Help You

By checking over these listings you can secure without charge important up-to-date information on many of the problems which may be troubling your city.

Write directly to the address given or use the Post Card on page 53.

Municipal Financing

367 If you are considering a municipal bond issue, and desire help, you can get it from the nation's second largest bank, which will provide the necessary experience, technical skill and high-level efficiency to properly assist you. For details, have an officer of your municipality write THE CHASE MANHATTAN BANK, 40 WALL ST., NEW YORK 15, N. Y.

Well Strainers

368 Strainers described in current COOK WELL STRAINER CO. literature feature V-shaped slot construction to permit fast, unobstructed water flow from water-bearing strata to well and to allow for maximum development of the well. They are available in brass, steel, bronze and iron and in any slot size. Address information request to 6330 GLENWAY AVE., CINCINNATI 11, OHIO.

Large and Small Snow Blowers

369 Snow blowers of every size powered to suit your needs are described in literature published by SICARD INDUSTRIES, INC., 753 W. MAIN ST., WATERTOWN, N. Y. Included are the BB Series and BM blower, which "chew" snow before feeding it into impellers; the Snow Master Junior, compact and powerful and designed specifically for municipal use; and the snow sweeper and blower for high-speed clearing of light snow.

Rips Stumps to Shreds in Minutes

370 Removing tree stumps can be a neat one-man operation with a Pow-R-Stump cutter on the job. For this machine rips stumps to shreds down to a depth of 10" below ground in a matter of minutes, leaves no holes to fill and doesn't damage walks or curbs. For descriptive literature, write VERMEER MFG. CO., 1452 W. WASHINGTON, PELLA, IA.

Removes the Skid from Steel Grid Bridge Floors

371 By roller-coating steel grids with LP/EPOXY compound and applying aluminum oxide abrasive to the still wet adhesive, the California Bureau of Highways quickly and economically eliminated accident factors on the Mossdale Bridge which spans the San Joaquin River. For details and data on these adhesives for highway use, write THIOKOL CHEMICAL CORP., 780 N. CLINTON AVE., TRENTON 7, N. J.

Pressure Control for Air and Gases

372 Small and lightweight, the Type AP-153 pressure control is recommended for mediums not injurious to steel or silver solder. It provides single-pole, cut-in high; single-pole, cut-in low; and single-pole, double throw operation. An SP-DT hermetically sealed mercury switch handles 4 amperes, 115 volts or 2 amperes, 239 volts. For descriptive *Bulletin* 02, write THE MERCOID CORP., 4201 BELMONT AVE., CHICAGO 41, ILL.

Up-To-Date Refuse Incineration

373 *Bulletin* No. 111-D gives details about automatic, continuously operating, cylindrical, mechnically stoked municipal incinerator units. Other features discussed are vertical spray chambers for low-cost fly-ash elimination and hydraulically operated ash dumping grates. For a copy, write MORSE BOULGER, INC., DEPT. A, 80 FIFTH AVE., NEW YORK 11, N. Y.

Water Filter Sands and Gravel

374 When you specify Red Flint sands and underdrain gravel you get a high silica content product, uniformly graded within close limits and available in large as well as small sizes to meet rigid specifications. For illustrated, descriptive literature, write EAU CLAIRE SAND & GRAVEL CO., EAU CLAIRE, WIS.

Traffic Liners

375 Traffic line markers for use in metropolitan centers, for large and medium cities and for small cities and towns are illustrated and described in *General Catalog* W-58. These Reflecto-Liners handle ordinary nonreflective paints as well as reflective marking materials. Write WALD INDUSTRIES, INC., HUNTINGDON, PA.

New Pipeline Products

376 An insulating seal (Style 116) that provides both effective sealing and insulation of casing ends and a casing cradle (Style 117) that provides permanent insulation and support between carrier pipe and casing at the casing end and also centers the carrier pipe in the casing have just been announced by DRESSER MFG. DIV., ONE OF THE DRESSER INDUSTRIES, BRADFORD, PA. They are available in sizes 6" through 36".

Wall-Mounted Waste Receptacles

377 These weather-tight containers encourage use. They fasten securely to wall or pole, are easy to empty, and free from vandalism. Moderate in cost, they are also economical to maintain. Descriptive literature can be obtained free from VEGA INDUSTRIES, 6119 E. BRIGHTON AVE., SYRACUSE 5, N. Y.

Cut Trench-Work Costs

378 The versatile Case 210B backhoe-loader will enable you to slash six trench-work costs. To learn how, write J. I. CASE CO., DEPT. H1569, RACINE, WIS.—and ask for a free file folder of specifications on Case *Utility* wheel and crawler tractors and catalog equipment.

Protects Metal, Free Sample

379 A simple letterhead request to RUST-OLEUM CORP., 2676 OAKTON ST., EVANSTON, ILL., can bring you (1) a free test sample of 769 damp-proof red primer for application over sound rusted surfaces, (2) a new 36-page catalog showing colors and applications, and (3) a 30-page technical report on Rust-Oleum fish oil vehicle penetration through rust to bare metal.

Plunger Sludge Pumps

380 This line of plunger sludge pumps is available in simplex, duplex, triplex and quadruplex designs, with 7-, 9-, or 11-inch plunger diameters. Capacities range up to 500 gpm with pressures up to 125 psi. The pumps can be used for a wide range of applicatons. For details, write MARLOW PUMPS, DIVISION OF BELL & GOSSETT CO., MIDLAND PARK, N. J.

Tractors and Equipment

381 Details on diesel and gasoline utility, all-purpose and industrial tractors for any power job, for any mowing and maintenance job, for any digging and loading job can be obtained from the INDUSTRIAL SALES DEPT., FORD MOTOR CO., BIRMINGHAM, MICH. Also ask about the new Select-O-Speed transmission.

For Park Superintendents

382 *Bulletin* 1092 describes a new soil-working team, the Landscraper and the Sherman-Gill, a multipurpose landscaping tool. The former does the rough grading, the latter scarifies, breaks clods, levels, finish grades, pulverizes, rolls and firms. For a copy, write SHERMAN PRODUCTS, INC., ROYAL OAK, MICH.

Incinerator Success Story

383 This essentially is the subject of literature offered by ILLINOIS STOKER CO., ALTON, ILL., which points out the advantages of continuous-feed, continuous-discharge type incinerator grates by detailing their record in New York City's Gansvoort incinerator plant.

Sanitary, Back-Door Refuse Collection

384 A flexible-plastic, cylindrical-shaped waterproof receptacle, designed by a municipal sanitation supervisor for use in back door refuse removal service, is highlighted in literature offered by COUNTY CHEMICAL CO., 2475 N. JERUSALEM RD., EAST MEADOW, N. Y. Called the Back-Door-Box, it weighs only 6 pounds, won't crack in cold, and has a capacity of 52 gallons.

Tapered Steel Lighting Tubes

385 For up-to-date area and floodlighting, specify Tulito tapered steel lighting tubes. They are especially designed for permanence, strength and safety, and will accommodate from 2 to 40 lights. For illustrated brochure, write MEYER MACHINE, INC., P. O. BOX 131, RED WING, MINN.

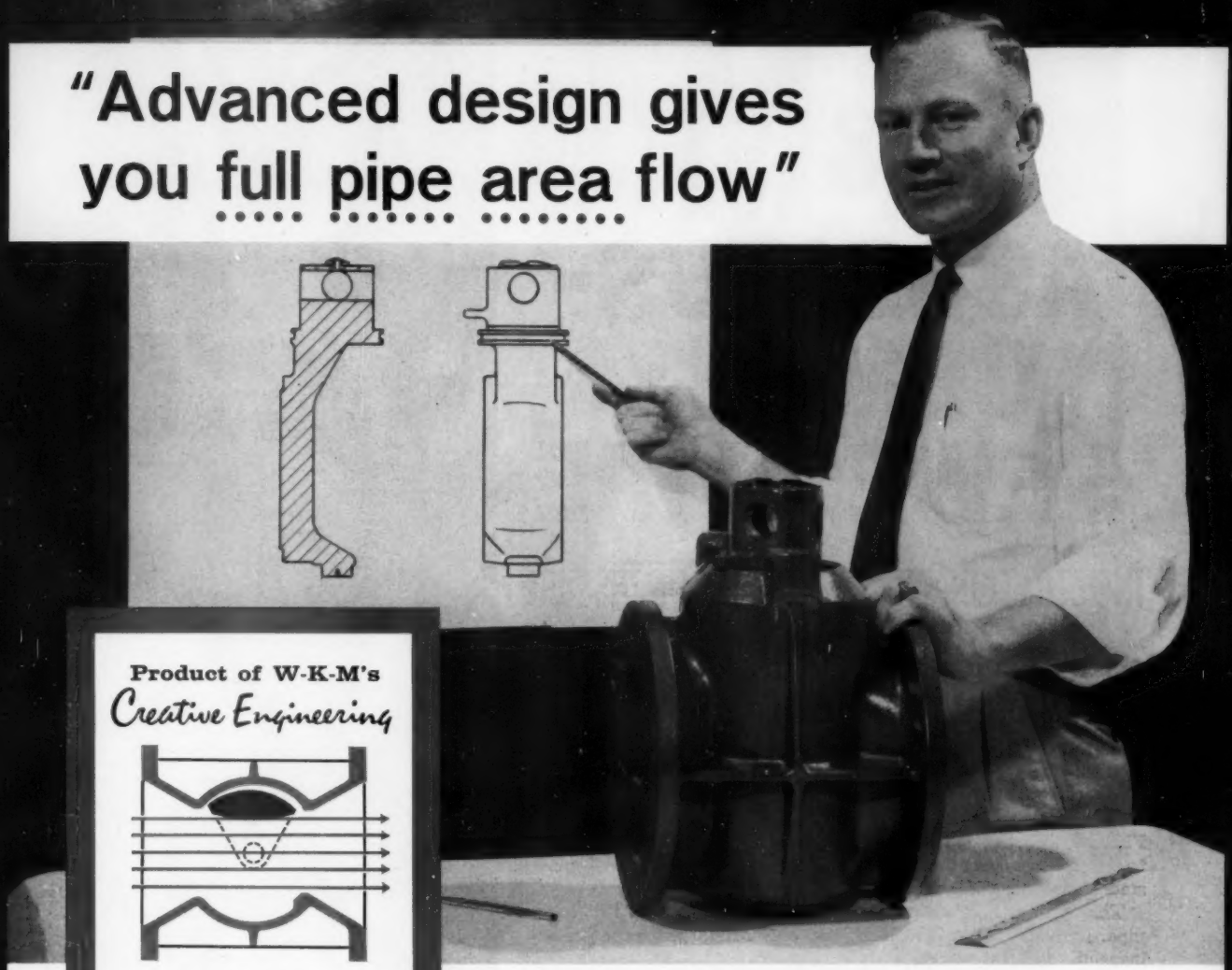
Helicopters for Construction and Utility Work

386 Among topics discussed in "New Workhorse for Utilities" are line patrol, construction and right-of-way maintenance by helicopter. Photograph of Hiller 305-hp 12E helicopters at work in the field and brief performance specifications are indicated. Write COMMERCIAL DIV., HILLER AIRCRAFT CORP., 1350 WILLOW RD., PALO ALTO, CALIF.

(See page 48 for more Bulletins)

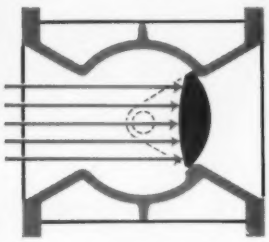
"W M"

"Advanced design gives you full pipe area flow"



Product of W-K-M's
Creative Engineering

OPEN



CLOSED

- Non-lubricated
- Easy quarter-turn operation
- No sticking or binding
- Bubble-tight seal
- Sizes 2" thru 12"
- Working pressure 150 pounds
- Highly visible indicator
- Easy to add worm gear operator assembly

5914

NEW ACF Eccentric Plug Valve for Sewage and Water Works Service

This NEW valve is rugged, compact, permits 100% pipe area flow, and features a simplified design that virtually eliminates upkeep problems.

The unique design of the plug, bonded with wear-resistant rubber, provides a positive, tight closure — a single adjustment permits positive compensation for wear. This new design requires only 7 parts — body, integral plug and stem, "O" ring head seal, split bearing ring, retaining ring and adjustable stop.

No other valve made for this service gives you so many important advantages resulting in greater efficiency with a minimum of maintenance. *See the ACF Eccentric Plug Valve at the F.S.I.W.A. Convention, Dallas, October 11-15.*

Write for Bulletin AE-1059

W-K-M

DIVISION OF ACF INDUSTRIES
INCORPORATED
P. O. BOX 2117, HOUSTON, TEXAS

"K&M" ASBESTOS-CEMENT SEWER PIPE

INFILTRATION-PROOF AT 25 PSI PRESSURE

Tests prove that the exclusive, patented "K&M" FLUID-TITE Coupling maintains a permanently infiltration-proof seal under severest field conditions.

This is true even when "K&M" Asbestos-Cement FLUID-TITE Sewer Pipe is under deflection, or is buried at various depths under heavy backfill. Tests prove this infiltration-proof pipe can withstand 25 psi external water pressure.

In addition to its tight sealing, "K&M" Asbestos-Cement FLUID-TITE Sewer Pipe is non-corrosive and completely immune to electrolysis. Its bore—with a Manning Factor of n-0.010—remains smooth and clean for full, unobstructed flow.

That's why there's a minimum of maintenance with this hardy pipe. It reduces treatment loads and costs. Requires fewer periodic inspections and cleanings.

There are five classifications of "K&M" Asbestos-Cement FLUID-TITE Sewer Pipe to meet your crushing strength requirements. To simplify planning and design.

Eliminate the problem of infiltration with tested and proven "K&M" Asbestos-Cement FLUID-TITE Sewer Pipe. Write to us today.

5 CRUSHING STRENGTHS OF "K&M" ASBESTOS-CEMENT FLUID-TITE SEWER PIPE

Size Inches	Class 1500	Class 2400	Class 3300	Class 4000	Class 5000
6	1500	2400	3300		
8	1500	2400	3300		
10	1500	2400	3300	4000	5000
12	1500	2400	3300	4000	5000
14	1500	2400	3300	4000	5000
16	1500	2400	3300	4000	5000

K·M
BEST IN ASBESTOS

KEASBEY & MATTISON
COMPANY • AMBLER • PENNSYLVANIA

5914

Use Northern Gravel for Rapid Sand Filter

This is the Water Plant of Dickinson, North Dakota. This plant, as have many all over the country, secured filtering material from the Northern Gravel Co., of Muscatine, Iowa.

Filter Sand Specifications

are carefully laid out. The Effective Sizes and Uniformity coefficients used by Consulting Engineers and also recommended by the American Water Works Association are the result of long specifications. Filter sand can be furnished with any effective years of research and experience.

The Northern Gravel Company is equipped to give you prompt shipment whether it be one bag or many carloads, exact to size between 0.35 MM and 1.20 MM.

Chemical Quality

of the filter sand is also important. It must be hard, not smooth, and free of soluble particles. The requires perfect washing and grading facilities. We have every modern device for washing, drying, screening and testing.

Filter Gravel

supporting the Filter Sand Bed, must be in turn, properly graded to sizes calculated to support the Filter Sand, and be relatively hard, round and resistant to solution.

Northern Gravel has no equal in facilities and our reserves of both sand and gravel are inexhaustible. Northern Gravel Company has been in business over 40 years. We guarantee uniformity of products and our records enable us to duplicate your requirements on short notice. Our location is central and we have commodity rates in every direction.

Northern Gravel Company

Box 307 **Muscatine, Iowa** **Phone: AMherst 3-2711**

FREE catalogs

Write directly to the address given or use the Post Card on page 53.

Street-Name, Traffic, Safety Signs

387 The current GRIMM STAMP & BADGE Co. catalog lists over 200 U. S. standard traffic signs, illustrates embossed aluminum or steel signs, posts, one-piece aluminum brackets, and describes new aluminum hand signs for schools, construction crews, utilities. Address requests to 8105 ROSALIE, ST. LOUIS 17, MO.

Tackles Any Trenching Job

388 A 5-position backhoe that reaches out over 20 feet at ground level, digs below 13 feet, dumps at a height of 11 feet, and has the leverage and hydraulic power to dig in hard frozen soil is highlighted in literature available from DEPT. D-49-J, JOHN DEERE INDUSTRIAL DIVISION, MOLINE, ILL.

Infiltration-Proof Sewer Pipe

389 Tests have shown this pipe able to withstand 25 psi external water pressure. Because it is noncorrosive and immune to electrolysis, its bore remains smooth and clean, for full, unobstructive flow. For details and crushing strength table on asbestos-cement Fluid-Tite sewer pipe, write KEASBEY & MATTISON CO., AMBLER, PA.

Drafting Room Equipment

390 . . . is the title of a 36-page booklet which illustrates, describes and gives specifications for drafting tables, plan files and accessories that will enable municipal engineering offices to be better equipped and more efficiently organized. For a copy of *Catalog* 15, write HAMILTON MFG. CO., TWO RIVERS, WIS.

All-Weather Cabs for Tractor Shovels

391 Custom-built and designed to attach easily and fit snugly, these "slide-away" cabs protect operators from inclement weather, increase productivity of equipment. There is a cab for each "payloader" model. For details, request *Form* P157A; write CAMPBELL DETACHABLE CAB CO., WAUCONDA, ILL.

Aluminum Traffic Signs

392 A new brochure gives cost-saving facts and availabilities on traffic control signs made of aluminum. For your copy, write KAISER ALUMINUM & CHEMICAL SALES, INC., DEPT. TS-34, 1924 BROADWAY, OAKLAND 2, CALIF.

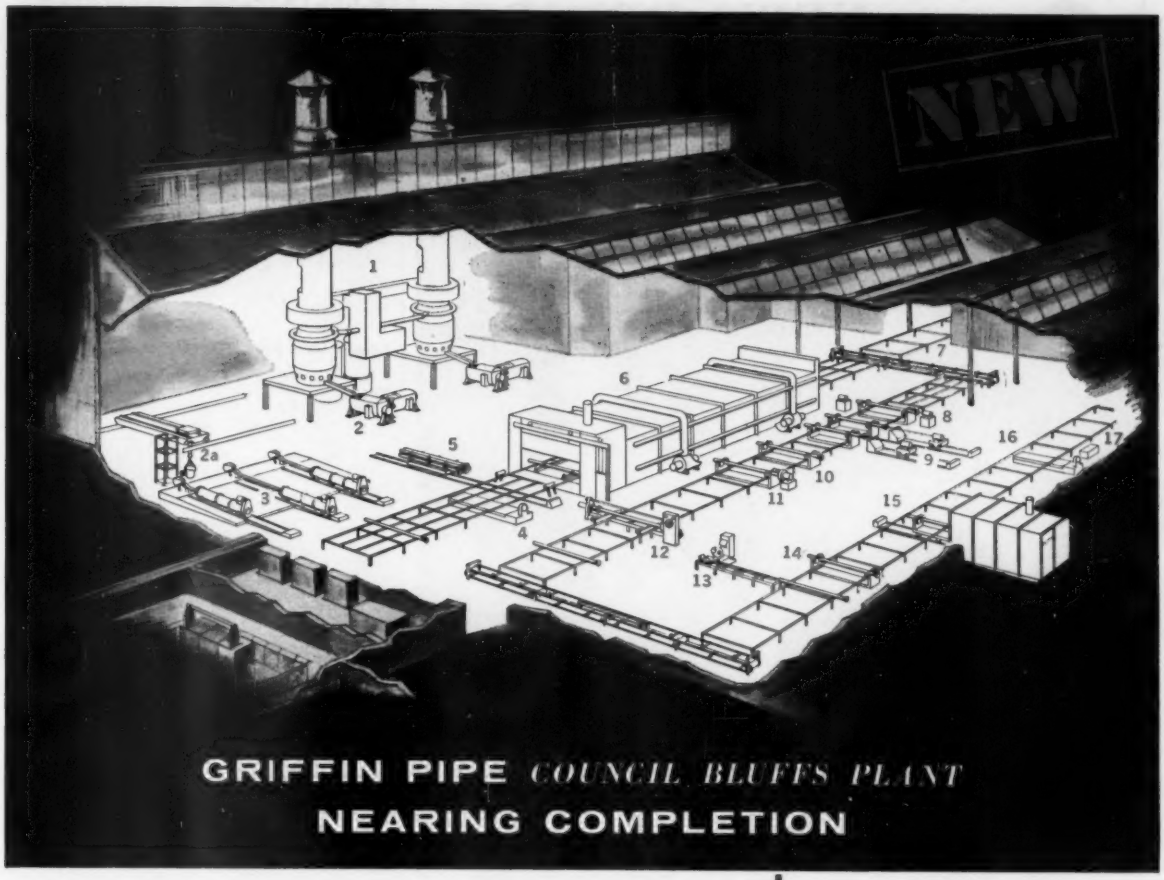
New Pneumatic-Tire Roller

393 *Bulletin* No. 434 gives complete information and specifications on the new Galion 12-ton, 9-wheel pneumatic-tire roller. Illustrations explain its Equa-Matic front-end construction, said to provide utmost operating stability and balance for the roller when working on uneven and sloping ground. For copies, write THE GALION IRON WORKS & MFG. CO., GALION, OHIO.

Collects Leaves, Cleans Catch Basins

394 Whatever the job, the Twin-50 Special works fast: 4 times faster when collecting leaves; 4-12 times faster cleaning catchbasins. It boasts 16-yard capacity, is self-dumping, and can vacuum an 8-foot swath. One of five models in the Obeco line, it is described in literature available from OMAHA BODY & EQUIPMENT CO., 30TH & TAYLOR, OMAHA 11, NEBR.

(See page 50 for more Bulletins)



GRIFFIN PIPE *COUNCIL BLUFFS PLANT* NEARING COMPLETION

Cast iron pressure pipe users throughout the Mid-West will shortly *save time and money* on shipments and installations . . . because Griffin Pipe's new and automated production facilities are almost completed.

The Council Bluffs foundry—95,000 square feet of buildings on 19 acres of land, will be completed and in operation by the end of this year. Griffin-20 pipe joints will include patented Bell-Tite "*slip-on*," *mechanical*, and *bell and plain end*. The trademark "Griffin-20" refers to the length of the pipe—20 feet as opposed to conventional 16- and 18-foot lengths—in the complete 4-inch to 12-inch diameter size range. The modern 20-foot length means *10 percent fewer joints*, and lower installation costs!

The Delavaud process, employed at the Council Bluffs plant, involves centrifugal casting in a permanent, water-cooled, revolving steel mold. Iron cast in this manner, and subsequently annealed, is particularly strong, and has a controlled hardness that permits easy cutting and tapping in the field.

Griffin-20 cast iron pressure pipe will be manufactured in accordance with ASA, AWWA, and Federal Specifications for water and gas distribution.

Take advantage of the strategic location of this new plant . . . and the substantial economies it can effect in *your* pipe installations! Send for our brochure, "Introducing Griffin Pipe".

1. Griffin Hot Blast Cupolas
2. Holding Ladles
2a. Transfer Ladle
3. Delavaud Casting Machines
4. Weigh Scale
5. Transfer Car
6. Annealing Furnace
7. Pipe Transfer
8. Bell and Plain End Grinders
9. Reamers
10. Finish Grinding
11. Pipe Cut-Off Machine
12. Hydrostatic Test Press
13. Cement Liner
14. High Speed Wring-Out
15. Paint Booth
16. Weigh Scale
17. Pipe Stencils

Griffin is constructing a new million-dollar pipe research center in Bensonville, Illinois. Griffin, founded in 1879, has 11 plants, and has poured more than 15 million tons of iron.

GRIFFIN PIPE DIVISION

GRIFFIN WHEEL COMPANY • COUNCIL BLUFFS, IOWA

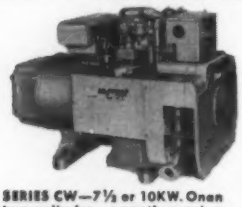
Onan NEWS REPORT

Mobile Onan Electric Plants keep road project on schedule

Onan 35,000-watt electric plants and telescoping light towers on skid mountings, floodlighted acres of work area on this Federal highway job. With these units, trucks, scrapers and loaders worked around the clock, almost tripled progress per day, helped finish the contract on time.

Operating a night shift with dependable, economical floodlighting from Onan plants will help you beat contract deadlines. But it will do more than that. Making a night shift a regular part of your operations can improve your profit picture by getting more work out of your big investment in machinery. Onan Electric Plants give you brilliant, safe, night lighting that helps maintain daytime efficiency.

Built in sizes from 500 to 230,000 watts, Onan plants will power any system of lighting you need . . . skid-mounted towers, truck-mounted floodlights, 4-wheel or 2-wheel trailer-mounted floodlight units. And they supply power for electric maintenance tools and communications, too.



SERIES CW—7½ or 10KW. Onan two-cylinder, smooth-running air-cooled gasoline engine. Drip-proof, all-climate generator.

SERIES 40EF—40KW Onan Magneciter Generator. 8-cylinder, heavy-duty, water-cooled gasoline engine.

Call the Onan distributor listed in your phone book or write for special folder

D. W. ONAN & SONS INC.

ELECTRIC PLANTS GENERATORS ENGINES ENGINE-COMPRESSORS

2549 University Avenue S.E. • Minneapolis 14, Minnesota

Onan ELECTRIC PLANTS

MONEY SAVING *catalogs*

Write directly to the address given or use the Post Card on page 53.

Valves for Municipal Services

395 A wide variety of valves and accessories, designed to meet the most exacting specifications for flow control in distribution and fire protection systems, sewage treatment and water filtration plants are the subject of new literature offered by IOWA VALVE CO., OSKALOOSA, IA.

Chain-Link Steel Fence

396 A safe, sure way to protect municipal buildings and play areas from vandals and prowlers is to enclose them with Realock Fence. For an illustrated folder giving gauges and mesh sizes and outlining the advantages of this corrosion-resistant fencing fabric, write THE COLORADO FUEL & IRON CORP., BUFFALO, N. Y., DENVER, COLO., OAKLAND, CALIF.

Revised Brush Chipper Booklet

397 "Chip Dollars From Your Overhead" has been brought up to date, and now comes complete with cutaway color drawings of these brush chippers in action. Specifications are included, exclusive engineering and operational features described. For your copy, write FITCHBURG ENGINEERING CORP., DEPT. AC-99, FITCHBURG, MASS.

One-Man Ice Control and Seal-Coating

398 *Form* No. TG-159 gives features and specifications of the Model TG tailgate spreader with dash-mounted hydraulic controls to regulate width and depth of spread for ice control, seal-coating and dust control work. Range of spreading width is from 5 to 40'. For a reply, write HIGHWAY EQUIPMENT CO., DEPT. H1-4, 616 "D" AVE., N.W., CEDAR RAPIDS, IA.

Pocket-Sized Floodlight Catalog

399 New 184-page *Bulletin* 2714 is a miniature edition of the CROUSE-HINDS CO. floodlight catalog. It includes all the original material: how to select floodlights; general-purpose; heavy-duty, mercury-vapor and special floodlights; lighting for hazardous locations, underwater lighting; installation suggestions, etc. For a copy, write the company at SYRACUSE 1, N. Y.

Crawler Tractor Highlighted

400 Within 14-page *Catalog* MS-1318 is a fold-out cutaway view of the HD-16 crawler tractor powered by the A-C 16000 diesel engine. Other features illustrated and described are the engine's combustion chamber, the HD-16's track release mechanism, new hydraulic dozer control units and matched equipment. Write CONSTRUCTION MACHINERY DIVISION, ALLIS-CHALMERS MFG. CO., MILWAUKEE 1, WIS.

Street Maintenance Equipment

401 Equipment geared to getting street maintenance jobs done efficiently and economically are presented in a new catalog offered by GLEDHILL ROAD MACHINERY CO., GALION, OHIO. Described is a comprehensive line of rugged snow plows, utility rollers, graders, a shaper and front dump-type scraper, a vacuum leaf-loader and weed-killing spray and sprayer.

(See page 52 for more Bulletins)

Protect against accidents like this!

Use straight Morton Rock Salt—the most effective way to help keep streets, freeways and tollroads safer in winter

Straight Morton Rock Salt does the job abrasives and Salt mixed with abrasives can't do to help prevent accidents caused by ice and snow. Morton Rock Salt gives *abrasive traction* against skidding even before the salt starts to melt the ice. Rock Salt crystals are larger than other commonly used ice melting chemicals and *penetrate ice deeper* with a corkscrew action—not just melt surface ice. Due to Rock Salt's better penetration, it reaches the pavement fast and quickly *melts* the bond between ice and the street surface.

Morton Rock Salt is safe, clean, economical

Straight Morton Rock Salt is non-toxic. It does not damage animals' paws, rubber, fabrics, leather, asphalt, brick or properly seasoned concrete. It will not clog sewers or leave a rutted, dirty pavement as will sand or cinders. What's more, Rock Salt melts *more ice at lower cost* at any temperature above 8° F. than any other commonly used ice melting chemical.

Send for more information today!

☐ Please send me your free book on ice and snow removal.

☐ I would like a Morton representative to advise me on how best to stockpile Morton Rock Salt.

Name_____

Title_____

Address_____

City_____ Zone____ State_____

MORTON SALT COMPANY

INDUSTRIAL DIVISION

Dept. AC-10, 110 No. Wacker Drive, Chicago 6, Illinois

FREE catalogs

Write directly to the address given or use the Post Card on page 53.

Municipal Uniform Insignia

402 These embroidered insignia are used by thousands of city departments and agencies because they meet official standards for durability, color-fastness and workmanship. For full facts, free sketches and quotations for special designs, write JOEL & ARONOFF, INC., DEPT. AC, 932 BROADWAY, NEW YORK 10, N. Y.

Speed Snow Removal

403 All-wheel drive puts power up front; all-wheel steering lets you steer front and rear. These are only two reasons why plow-equipped A-W motor graders can remove snow quickly, efficiently. For full facts, write AUSTIN-WESTERN, CONSTRUCTION EQUIPMENT DIVISION, BALDWIN-LIMA-HAMILTON, AURORA, ILL.

One Machine Does Many Tasks Well

404 *Catalog* 5740 will acquaint you with the Pneumatractor, a versatile combination of air compressor, able to supply 125 cfm of air at 100 psi, and wheel tractor that accommodates winch, snow plow, sweeper, angle dozer blade, front-end loader, post hole digger and other accessories. Write SCHRAMM, INC., 603 NORTH GARFIELD AVE., WEST CHESTER, PA.

Stores Blueprints, Drawings

405 The Staktube steel roll file, which holds 36 2½" file tubes, puts valuable blueprints and drawings at your fingertips and fully protects them. Files come complete with tubes, in four different lengths, have an index record of contents on the inside of the door and a label holder on the outside. For descriptive catalog, write STACOR EQUIPMENT CO., 295 EMMET ST., NEWARK 5, N. J.

Corrosion-Resistant Pole-Top Mounting Adapter

406 A new cast aluminum adapter permits fast installation of twistlock photoelectric controls. It will fit any round or fluted ornamental pole up to 4½" o.d., and with an i.d. of 3" or more. The S-485 conforms to EEI specification TDJ-148 and NEMA specification SH-18-1959. For additional information, write THE FISHER-PIERCE CO., 170 PEARL ST., S. BRAINTREE 85, MASS.

Makes Traffic Line Striping Easier

407 A new automatic striping gun for use on highway marking equipment is diaphragm-operated and requires approximately 25% less air to operate at peak efficiency. It is being installed on the various types of striping equipment made by KELLY-CRESWELL CO., XENIA, OHIO, and is available as a replacement part.

Mercury Luminaires for Roadway Lighting Applications

408 G-E's new line of mercury luminaires for residential and light-traffic streets, for business and traffic streets and highways, for whiteways and shopping centers are described in 12-page *Bulletin* GEA-6943, as is a new cadmium sulphide photoelectric control, GEA-6987. For a copy, write SECTION G450-5 GENERAL ELECTRIC CO., SCHENECTADY 5, N. Y.

New Hazard Warning Aid

409 A new barricade flash with two-directional head or 360° dome-type Fresnel produces approximately 2000 hours of continuous flashing from two standard 6-volt batteries at a flash frequency of about 72 times per minute. For descriptive literature, write U-C-LITE MFG. CO., 1063 W. HUBBARD ROAD, CHICAGO 22, ILL.

Treadle-Operated Washfountains

410 These sanitary and economical washing facilities save space, water and installation costs. A touch of the foot treadle and tempered water is supplied from a central sprayhead for two. They are available in three heights. *Bulletin* K1202 fully describes them; for a copy, write BRADLEY WASHFOUNTAIN CO., 2333 W. MICHIGAN ST., MILWAUKEE 1, WIS.

Low-Cost Earthmoving, Materials Handling

411 By writing to INTERNATIONAL HARVESTER CO., DEPT. AC-9, P. O. BOX 7333, CHICAGO 80, ILL., you can obtain a specification folder on the new T-340 International Drott, which brings almost unlimited versatility to earth moving and materials handling operations by working as front-end loader, dozer, carry-type scraper and multipurpose clamshell.

Municipal Uniform Fabrics

412 For information on top quality fabrics for police, fire, park and sanitation department uniforms, write DAVID E. SINGER, SALES AGT., FRANKLIN WORSTED CO., 40 E. 34TH ST., NEW YORK 16, N. Y. He will give you details on fabrics of all weights for all climates, on worsted whipcords and elastiques, on gabardines and tropicals in worsted or worsted and dacron blends.

Pipe Cutting Equipment

413 A complete file folder on this subject contains literature on power- and hand-operated pipe saws for cutting cast iron and steel pipe on the job or in the shop, milling cutters, blades, bits, extenson bows and saddles, a pipe coupling machine and tapper for hand taps of gas mains. Write THE E. H. WACHS CO., 1525 NORTH DAYTON ST., CHICAGO 22, ILL.

Propeller and Mixed-Flow Pumps

414 A highly informative bulletin released by LAYNE & BOWLER, INC., MEMPHIS 8, TENN. gives complete detailed information on the company's propeller and mixed flow pumps. Included in *Bulletin* No. 350 are cut away drawings, installation sketches and measurements, delivery and performance tables and all uses and applications of these pumps.

Outdoor Lighting Fixture for Highway Signs

415 A reflector offers high efficiency uniform distribution with maximum usable light, minimum spill. It is adjustable in 360°, fits all lamp types and can be supplied with photo cell for automatic turn-on, turn-off. It is designed for highway signs and is in use on the Connecticut Turnpike. For details, write WHEELER-FULLERTON, LIGHTING DIV., FRANKLIN RESEARCH CORP., 275 CONGRESS ST., BOSTON 10, MASS.

Radioactivity Water Monitor for Municipalities

416 *Bulletin* Form 3039-9 describes a compact scintillation flow monitor that fully and automatically protects water supply systems against dangerous radioactivity resulting from fallout, nuclear disposal, radioactive rain or other contaminants. For your copy, write VICTOREEN INSTRUMENT CO., 5806 HOUGH AVE., CLEVELAND 3, OHIO.

Metal Sewer Pipe

417 There is a size and type of Armco corrugated metal pipe to meet virtually every sewer requirement, to help solve sanitary and storm sewer problems. For details, write ARMCO DRAINAGE & METAL PRODUCTS, INC., 5469 CURTIS ST., MIDDLETOWN, OHIO; request the catalog "Armco Sewer Structures."

Quickly Unclogs Sewers

418 An 8-page folder explains how the only rodding machine with positive, non-slip rod drive can safely rod up to 4000 feet of sewer daily at a cost of 8c per foot. For a copy, write FLEXIBLE INC., 2788 DURANGO AVE., LOS ANGELES 34, CALIF.

Street Lighting Poles

419 *Bulletins* LS-29 and LS-30 have just been announced by THE UNION METAL MFG. CO., CANTON 5, OHIO. They contain valuable information for the municipal street lighting engineer and feature steel and aluminum poles properly engineered to meet today's rigid outdoor street lighting requirements.

Surveying Instruments

420 *Brochure* DK 518-10 will bring you up to date on a complete line of surveying instruments recognized for their speed, operational simplicity, accuracy and economy. For a copy, write KERN INSTRUMENTS INC., 120 GRAND ST., WHITE PLAINS, N. Y.

Fork Lift Trucks

421 A new 16-page pictorial review of FT Series fork lift trucks is now available from the ENGINE MATERIAL HANDLING DIV., ALLIS-CHALMERS MFG. CO., MILWAUKEE, WIS. Illustrations, including cutaways, help describe engineering, design, construction and operating features. Request *Catalog* BU-451A.

Solve Complex Traffic Problems

422 The new "EC" vehicle supervised system introduced by EAGLE SIGNAL CORP., MUNICIPAL DIVISION, DEPT. AC-1059, MOLINE, ILL., properly combines flexibility with vehicle detestion and programming to provide a completely organized and automatic selection of splits, offsets and cycle lengths to meet each traffic need as it arises. Catalogs are available.

Police Pocket Radio

423 This 2-way radio can broaden your communications system and add new efficiency to your entire police force by multiplying the maneuverability, control and coordination of policemen on foot or away from their cars. For details, write MOTOROLA COMMUNICATIONS & ELECTRONICS, 4501 AUGUSTA BLVD., CHICAGO 51.

Truck-Mounted Backhoe

424 Unusual maneuverability and downward pressure of this hydraulic unit enables it to dig under sidewalks, pipes and curbs, even 8 feet under itself. It can be mounted on any truck chassis of 2½ tons or more, and its bucket holds and dumps a full load. For technical bulletin, write HYDRAULIC MACHINERY CO., 1400 NATIONAL AVENUE, WAUKESHA, WIS.

Crawler Tractor Bulletin

425 Important reading for tractor users is a new 16-page, color catalog, available from THE OLIVER CORP., INDUSTRIAL DIVISION, 19300 EUCLID AVE., CLEVELAND 17, OHIO. It describes the OC-4, "Spot-Turn" steering, is illustrated with application pictures and data, and shows many work-speeding accessories.

(See page 56 for more Bulletins)

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THE AMERICAN CITY MAGAZINE
470 PARK AVENUE SOUTH
NEW YORK 16, N. Y.

DON'T LET THIS HAPPEN TO YOU

Learn how to avert Water Supply crises and other municipal problems. Get the information you need in a hurry with this reply card.

To THE AMERICAN CITY's Catalog Supply Department

Please send me literature on items numbered as follows, starting on page 44:

367	379	391	403	415	427	439	451	463	475	487
368	380	392	404	416	428	440	452	464	476	488
369	381	393	405	417	429	441	453	465	477	489
370	382	394	406	418	430	442	454	466	478	490
371	383	395	407	419	431	443	455	467	479	491
372	384	396	408	420	432	444	456	468	480	492
373	385	397	409	421	433	445	457	469	481	493
374	386	398	410	422	434	446	458	470	482	494
375	387	399	411	423	435	447	459	471	483	495
376	388	400	412	424	436	448	460	472	484	496
377	389	401	413	425	437	449	461	473	485	497
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Please send me further information on products described in "Purchasing News" section beginning on page 234 as circled below:

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952	959	966	973	980	987
953	960	967	974	981	988
954	961	968	975	982	989
955	962	969	976	983	990
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957	964	971	978	985	

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THE AMERICAN CITY MAGAZINE

470 PARK AVENUE SOUTH

NEW YORK 16, N. Y.

save time, effort and be sure of performance by using this reply card.

HOW LOW-COST BANOX PROTECTS CARS, BRIDGES, PUBLIC EQUIPMENT FROM SALT-SLUSH CORROSION

Nothing matches salt as an effective, inexpensive, remover of snow.

But, salt-slush corrodes automobiles, bridges, manhole covers, and other public equipment and structures.

Banox keeps this from happening. A small amount of Banox added to the salt reduces corrosion due to salt by as much as 95%. Only one pound of Banox need be added to 100 pounds of salt in order to furnish this protection. (Ready-mixed Banox and rock salt is available from many suppliers.)

This means that an entire city can be protected from winter salt corrosion for only a few cents per capita.

Easy to handle and to mix with the salt, the dispersion of Banox on the street does not have to be thorough —moving traffic equalizes the strength to the desired level as ice and snow melt.

In addition, Banox is non-toxic, odorless and completely harmless.

Get full details on how your community can be protected—inexpensively, effectively. Write for free booklet 420-12-3 or contact your nearest Calgon/Hagan representative.

CALGON COMPANY
DIVISION OF **HAGAN** CHEMICALS & CONTROLS, INC.
HAGAN BUILDING, PITTSBURGH 30, PA.
In Canada: Hagan Corporation (Canada) Limited, Toronto

BANOX KEEPS EVERY SCRATCH FROM LOOKING LIKE A SCAR!

Automatic Solution to YOUR Parking Problems

PARCOA

Off-Street, Controlled Parking Lot Systems

Lower Cost • Higher Revenue

Now . . . with Parcoa Systems . . . parking can continue day and night, *smoothly, safely, quickly* with NO INTERRUPTIONS . . . NO CONFUSION . . . NO OVER-CROWDING.

- Designed by engineers who have studied off street parking problems to give you every possible benefit.
- Affords complete installation and operating simplicity. PARCOA gives you the answer to both controlled parking and good income.
- A PARCOA system means LOW FIRST COST . . . LOW OPERATING COST . . . an operation that actually PAYS FOR ITSELF. Your revenue is protected at all times.

Here is automatic parking that assures 100% collection . . . that means ease of maintenance . . . that has proved itself in the service of business, industry, hospitals, schools and municipalities.

Before deciding on a parking control method or installation of meters . . . investigate PARCOA . . . learn the many benefits and the advantages . . . the simple answer to parking problems.

Find out how PARCOA parking gates can solve your problems. Write today for Bulletin No. 580.

Choice territories available. Distributor inquiries invited.

FLEXIBLE OPERATION

These control types give you a choice of individual or combination of controls to fit your needs.

CODED CARD-KEY
for cars parking on monthly or reserved basis.

COIN OPERATION
for controlled transit parking.

TICKET ISSUING SYSTEM
for merchants restricted free parking service.

TIME-DATED TICKET DISPENSER
for automatic self service in merchant participation parking.

PARCOA DIVISION

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SALES AND SERVICE OFFICES IN OTHER MAJOR CITIES LISTED UNDER BOWSER, INC.

YOU NEED *These catalogs*

Write directly to the address given or use the Post Card on page 53.

Smooths Office Procedure

426 Facts and ideas on how to cut the cost of office operations, speed work and better protect valuable records can be obtained in booklet form without obligation from the RECORDS HANDLING DIVISION, THE MOSLER SAFE CO., 320 FIFTH AVE., NEW YORK 1, N. Y.

Asbestos Cement Sewer Pipe

427 Municipal civil engineers will find the new 8-page *Booklet* TR-206A now being offered by JOHNS-MANVILLE, BOX 14, NEW YORK 16, N. Y. highly informative and interesting. It tells of the advantages in using Transite pipe for sewer installations and house laterals and points out how it eliminates infiltration and provides long, trouble-free service.

3- and 4-Yard Tractor Shovels

428 Production-boosting features and maintenance advantages offered by the HD-16G and HD-21G torque converter drive tractor shovels are described in new 8-page *Catalog* MS-1274, available from ALLIS-CHALMERS MFG. CO., CONSTRUCTION MACHINERY DIVISION, MILWAUKEE, WIS.

Traffic and Street Name Signs

429 Fully-illustrated *Sign Manual*, No. B-55, is packed with 36 pages of valuable information on traffic and street name signs, embossed to increase legibility, strength and rigidity and to give motorists greater protection. For your copy, write LYLE SIGNS, INC., 2720 UNIVERSITY AVE., S. E., MINNEAPOLIS 14, MINN.

Prestressed Concrete Swimming Pools

430 The National method of constructing swimming pools utilizes easily handled precast mortarless, interlocking concrete units, prestressed into a triple wall. It permits use of local labor and the building of a pool at less cost. For details, write NATIONAL POOL EQUIPMENT CO., P.O. BOX 1101, INDIANAPOLIS, IND.

Dependable Water Meters

431 All-bronze, split-case frost-proof water meters that accurately measure water use over long periods of time are the subject of literature now available from CALMET METER DIVISION, WORTHINGTON CORP., 2301 S. MAIN, FORT WORTH, TEXAS.

Power Lawn Mowers

432 For up-to-date information on a complete line of power lawn mowers that will help you achieve faster, better lawn care of both large and small turf areas at less cost, write LOCKE STEEL CHAIN CO., 1315 CONNECTICUT AVE., BRIDGEPORT 1, CONN.

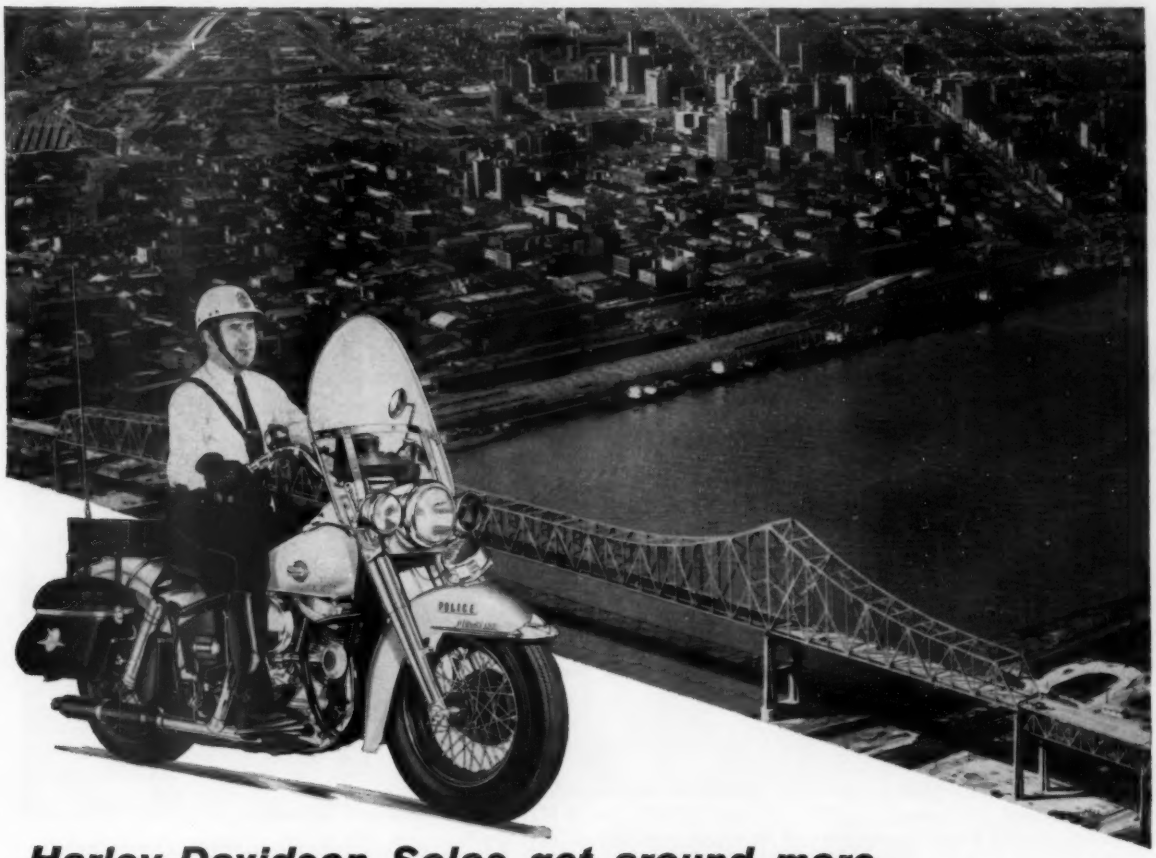
Versatile Maintenance Machine

433 Lift-loader, bulldozer, broom, snow plow, scarifier, side dozer, berm level, patch roller—with hydraulically cab-controlled attachments the M-52 Maintainer proves its versatility on construction and maintenance assignments. For full facts on this 6,230-pound, 45½-hp unit, write HUBER-WARCO CO., MARION, OHIO.

(See page 59 for more Bulletins)

Stretching the long arm of the law in New Orleans

NEW ORLEANS, LA. — Here's a city that's growing by leaps and bounds. In fact, by total area (363.5 square miles) it's the nation's third largest. A fleet of 49 Harley-Davidson Solos range far and wide keeping law and order in this sprawling metropolis.



Harley-Davidson Solos get around more

...bridge the gap between you and trouble

Solo-mounted officers really do get around . . . around all obstacles. Nothing stops these mobile vehicles from getting through to the spot where they're needed — always poised to strike swiftly whether in crowded traffic or on busy expressways and fast-moving highways.

And no other police vehicle is more versatile. Use Solos on traffic control, criminal apprehension, residential and school patrol, daily emergencies, calamaties, special duty, parade and escort duty. With communities *spreading out* and at the same time *spreading thin* your personnel, it is this flexibility that allows you to get the most out of your equipment dollars.

The Solo for 1960 is better than ever. Mobile radio-phone, speedometer clock control, siren and pursuit lights are improved features — add teeth to law enforcement. Call your Harley-Davidson dealer. Or write Harley-Davidson Motor Co., Milwaukee 1, Wisconsin for informative new brochure, "Intensive, Effective, Impressive Police Mobility."

HARLEY-DAVIDSON

Police Motorcycles

Vibration from speeding trains won't cause leaks in this

TYLOX-JOINTED SEWER LINE

Here's a mountain that gets "shook up" each time a train thunders through the cut. The pipe line being installed beside the tracks will get "shook up," too, but it won't spring leaks at the joints and thus endanger the stability of the roadbed. In specifying TYLOX RUBBER GASKETS for coupling the pipe, designers not only assured the safety of the railroad subgrade, but put their sewer project ahead in three important ways . . .

NO INFILTRATION—Rubber TYLOX seals by compression, preventing leakage in or out of the pipe. Cost of sewage treatment is reduced . . . root and sediment problems are eliminated.

NO JOINT FAILURES — Flexible TYLOX safely absorbs soil stresses, shock loads and severe vibration. Under ground and under compression it never deteriorates. TYLOX lasts for the life of the pipe itself.

NO INSTALLATION DELAYS—fast working TYLOX permits wet-trench jointing and immediate backfilling. TYLOX reduces pipe installation costs.

* **PROJECT:** Tumwater sanitary sewer, Olympia, Washington. (1500 ft. parallel to main line of the Union-Pacific Railroad into Olympia, Wash.)

ENGINEERS: Carey & Kramer, Consulting Engineers, Seattle, Washington.

CONTRACTOR: Harold Kaeser Co., Seattle Washington.

PIPE: Tylox-jointed 18" reinforced concrete, manufactured by **GRAYSTONE** of Olympia, Inc., Olympia, Washington.

5073

Write for new Tylox brochure!

Read the facts on TYLOX and see why it is specified for important pipe jobs all over the world. **Specify** TYLOX to assure economy, safety and longevity on **your** pipe projects.

HAMILTON KENT MANUFACTURING COMPANY
KENT, OHIO
427 West Grant Street Orchard 3-9555

FREE catalogs

Write directly to the address given or use the Post Card on page 53.

New Traffic Aids

434 A traffic counter that provides a clear, accurate, continuous graphic record of traffic volumes, a die-cast neon pedestrian signal with aluminum housing, and an incandescent pedestrian signal of advanced mechanical design and improved legibility are described in literature offered by ECONOLITE CORP., 8900 BELLANCA AVE., LOS ANGELES, 45, CALIF.

Electric Photometer for Water Analysis

435 Adaptable for use in water analysis, the Klett Summerson electric photometer can be used for any determination in which color or turbidity can be developed in proportion to the substance to be determined. For full facts, write KLETT MFG. CO., 179 E. 87TH ST., NEW YORK, N. Y.

Rigid Plastic Pipe for Municipal Services

436 Whether you specify lightweight rigid plastic pipe made of ABS plastic for main-to-house water lines, underground sprinkler systems or electrical conduit, you can count on its superior tensile strength, low friction loss, chemical resistance, noncorrosiveness, and its ease of installation. For full facts, write MARBON CHEMICAL DIVISION OF BORG WARNER, WASHINGTON, W. VA.

Surveyor's Transit

437 For full facts on an optical repeat transit that will bring speed, precision and versatility to municipal surveying work and has the added convenience of automatic vertical collimation setting, write WILD HEERBRUGG INSTRUMENTS, INC., MAIN AT COVERT ST., PORT WASHINGTON, N. Y. Request Booklet T-1A.

Sweeps Narrow Streets, Alleys

438 These sweepers are ideal for narrow streets, alleys, parking areas. They can handle the street cleaning program of smaller cities or supplement units of larger capacity in big cities. The 200-W is a water spray dust control model; 200-V has powerful vacuum dust control for extreme dust conditions. Write WAYNE MFG. CO., 2433 E. LEXINGTON AVE., POMONA, CALIF.

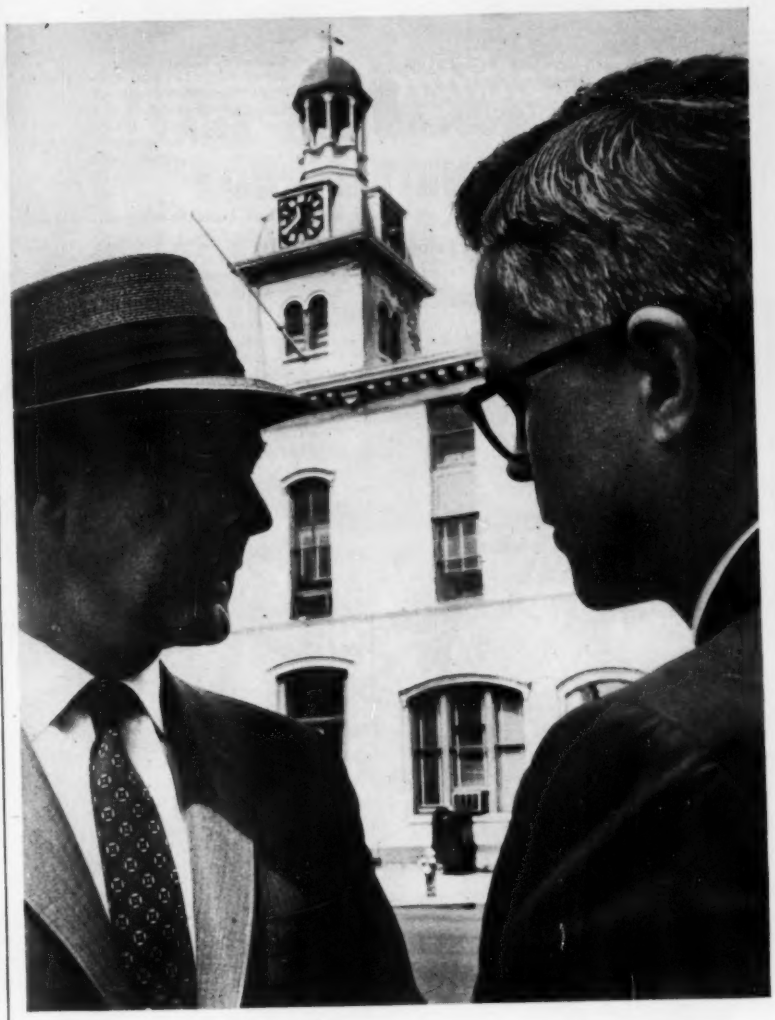
Imaginative Playground Equipment

439 Thirty-six page *Catalog* 300 can serve as a guide to colorful playground equipment that [illegible] safe, appealing fun to municipal tot lots and playgrounds. Illustrated and described are Jack and Jill, Earn-A Slide, Merry Flyer, two-level climbers and whirls. For a copy, write MIRACLE EQUIPMENT CO., GRINNELL, IA.

Powers 30 Attachments

440 A powerful 6.6-hp tractor and its 30 performance-proved interchangeable tools and attachments are the subject of a new, 24-page booklet which illustrates how this versatile unit solves lawn, light sweeping and snow removal problems. For a copy, write GRAVELY TRACTORS, INC., DUNBAR, W. VA.

(See page 60 for more Bulletins)



"If you're thinking about a Municipal Trust or Fiscal Agency talk to the people at Chase Manhattan"

New York's leading bank has the men and the experience you need to handle Municipal Trust details at high-level efficiency.

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Any municipal or governmental unit considering a bond issue will find it profitable to talk to the people at Chase Manhattan.

Chase Manhattan's Trust Department is staffed with people long experienced in every detail of acting as Municipal Trustee and Fiscal Agent. Their experience and technical skill enable them to serve you efficiently and administer any agreement, no matter how complicated.

The range of Chase Manhattan trusteeship runs from the nation's biggest toll roads to its most expansive utilities. Chase Manhattan municipal trust customers extend to every corner of the free world.

If you are an officer of a municipality or a governmental unit, talk to the people at Chase Manhattan about your trusteeships. The address is 40 Wall Street, New York 15. The telephone number—HAnover 2-6000.

THE CHASE MANHATTAN BANK

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Write directly to the address given or use the Post Card on page 53.

Prestressed Concrete Lighting Poles

441 *Catalog* 400 offers complete information on HY-LITE stress-spun concrete lighting standards, designed to bring trim appearance, low maintenance and long life to every lighting need. For your copy, write AMERICAN CONCRETE CORP., 5092 NORTH KIMBERLY AVE., CHICAGO 30, ILL.

Snow Plows

442 Rugged, heavy-duty plows that perform smoothly and efficiently under the most adverse snow removal conditions are the subject of literature offered by GOOD ROADS MACHINERY CORP., MINERVA, OHIO. The several models discussed include reversible, V, one-way and rigid plows.

Continuous Lime Feeder and Slaker

443 *Bulletin* 250-A describes the Type N lime feeder and slaker, which combines in one continuous process the consecutive operations of feeding and slaking quicklime, the continuous and automatic removal of grit, and the preparation and uniform delivery of a correct milk of lime mixture for water, sewage and waste treatment. It can be obtained from INFILCO INC., TUCSON, ARIZ.

Water and Sewage Treatment Equipment

444 Planning a new water or sewage treatment facility? Expanding an old? In either case, you'll require up-to-date information. A simple way to get it is to write to DORR-OLIVER INC., STAMFORD, CONN., a foremost supplier of sewage and water treatment equipment to meet the needs of any type or size plant, regardless of kind of treatment desired.

Self-Filling Bituminous Distributors

445 This new line of maintenance-type distributors utilizes fixed or circulating spray bars, operates one or more hand sprays, handles all types of liquid bituminous materials, and comes equipped with two burners and in 400-, 600-, and 800-gallon sizes. Accessories permit adding of features to meet specific requirements. For *Bulletin* DI-2, write AEROIL PRODUCTS CO., INC., SOUTH HACKENSACK, N. J.

Straight, Smooth Cuts in Asphalt Surfacing

446 Cutaline Model 200 produces smooth, vertical cuts up to 4" in depth in asphaltic pavement, at reported savings up to 5¢ per lineal foot. It attaches to any medium or heavy-duty motor grader with a scarifier beam. Its heat-treated wheel blade cuts over 30,000 lineal feet without resharpening. For full facts, write CUTALINE CO., 425 N. LAUREL AVE., ONTARIO, CALIF.

Power for Snow, Turf Street Equipment

447 For a briefing on a complete line of air-cooled engines that furnish fast-starting, smooth-running power for turf, snow and street maintenance equipment, write WISCONSIN MOTOR CORP., MILWAUKEE 46, WIS. Request *Bulletin* S-237; also *Bulletin* S-228 for information on the Wisconsin Engine Kit for Gravely tractors.

Pneumatic Transmitters for Water, Sewage Fields

448 *Technical Bulletins* 755 and 754 discuss the operation and advantages of two pneumatic transmitters that work on a 3-15 psi signal: Type TD, of the Force-Balance principle, for loss of head, and Type PN, for rate of flow. *Bulletin* 753 shows how they can be assembled as one compact unit. For copies, write SIMPLEX VALVE AND METER CO., LANCASTER, PA.

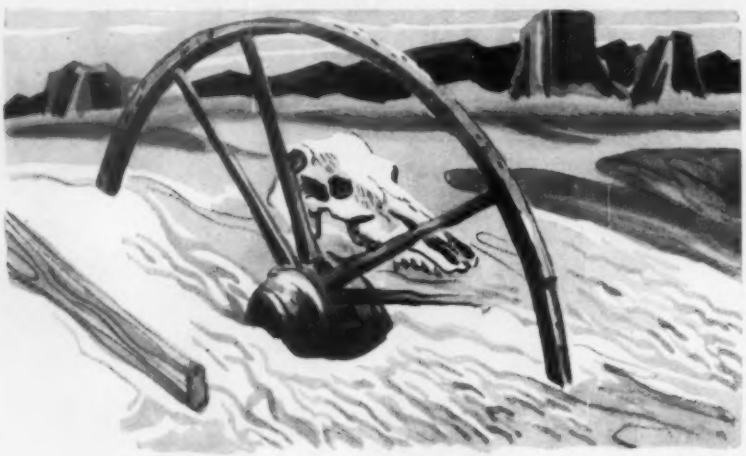
Chemical Control of Aquatic Plant Life

449 The use of copper sulfate for the control of algae, fungi, microorganisms and roots is the subject of a valuable booklet, available from TENNESSEE CORP., 617-29 GRANT BLDG., ATLANTA, GA. Applications to reservoirs, in filtration plants, in swimming pools and cooling towers and for root control is discussed and a table on chemicals required for treatment of different genera is included.

Street and Highway Lighting Standards

450 Helpful information on aluminum street and highway lighting standards, luminaires, aluminum lighting brackets for wood, steel or concrete pole mounting, aluminum conversion units, and davit-style lighting standards can be obtained from PFAFF & KENDALL, 84 FOUNDRY ST., NEWARK 5, N. J. Request *Bulletins* ALS, LTG-30, BR-11, ALS-59 and ALS-40.

(See page 63 for more Bulletins)



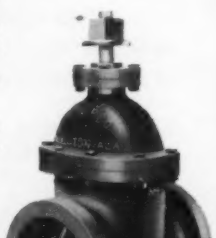
DEATH in the DESERT

If you have ever seen a desert or picture of a desert, you realize it is a scene of death. There may lie the bleached bones of an animal or a human being. There are no trees, no vegetation. The soil may be rich in plant food, but nothing grows. It is proof that water is the lifeblood of everything that grows—animal or vegetable.

It is an historic fact that past civilizations have risen and fallen according to their ability to satisfy their need for water. Water's abundance in America in the past is now deceiving. Not that the U. S. is turning into an arid desert, but the problem is inadequate water distribution facilities. U. S. water works improvements have not kept step with the phenomenal increase in population and industrial expansion, which means increased demand for water.

U. S. water works officials know this situation and are trying to solve it, but they need better public support.

This Series is an attempt to put into words some appreciation of the water works men of the United States.



M&H VALVE AND FITTINGS COMPANY
ANNISTON, ALABAMA
SUBSIDIARY OF WALWORTH

TAKE THE BLINDFOLDS OFF YOUR METER READERS

Lick the problem of fogged registers

HERMETICALLY SEALED REGISTER IS DRIVEN BY THE POWERFUL BOND OF A MAGNETIC COUPLING

You can lick the problem of fogged registers by installing the latest, finest meters ever developed. Get Rockwell Sealed Register Meters. Then dirt and moisture, the arch enemies of your meter readers, will be no more. That's because the register in this meter is hermetically sealed in stainless steel and glass to prevent condensation.

Get these other advances, too. Get the only meter with a powerful magnetic drive . . . the only meter with friction-free instrument type reduction gearing . . . the only meter with but two parts operating in water . . . the only meter without a stuffing box.

And with Rockwell Sealed Register Meters you'll get less wear, less chance for corrosive attack and, of course, easier maintenance at lower cost. So get all the facts now. Write Rockwell Manufacturing Co., Pittsburgh 8, Pa.

Now available in both ⅝" and full ¾" sizes

SEALED REGISTER METERS

another fine product by

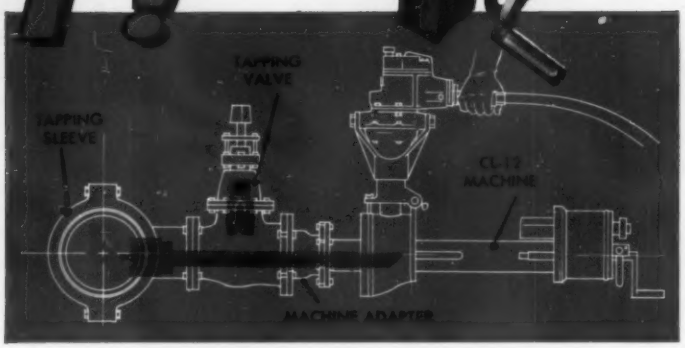
ROCKWELL

connect branch mains

FAST!

MUELLER®
Tapping Sleeves and Valves

MUELLER
CL-12 Drilling Machine



Just follow these few simple steps:

1. Attach tapping sleeve to main.
2. Bolt tapping valve to sleeve.
3. Open tapping valve all the way.
4. Bolt "CL-12" to tapping valve.
5. Make cut into main (as shown above).
6. Close tapping valve completely.
7. Remove drilling machine.
8. Attach branch main to tapping valve.
9. Open valve to put branch in service.

The use of Mueller "quality-matched" equipment eliminates the need for extra adapters and fittings and reduces set-up time. The automatic power operation of the CL-12 Machine reduces cutting time, too, and completely frees the operator for other work around the job-site while the main is being cut. *Total on-the-job time is greatly reduced.*

Write for complete information.

Calked or mechanical joint type sleeves and valves are available in a full range of main and and branch main sizes.
The "CL-12" may be hand operated with a ratchet handle or power operated with an air motor (shown) or gasoline engine drive unit.

MUELLER CO.
DECATUR, ILL.

Factories at: Decatur, Chattanooga, Los Angeles;
In Canada: Mueller, Limited, Sarnia, Ontario

FREE catalogs

Write directly to the address given or use the Post Card on page 53.

Quick-Snap Coupling for Snow Plows

451 The Husting Hitch permits any truck to engage any snow plow automatically in just 3 seconds. Spring pin action is the key. For full story on this new and fool-proof development in snow plow coupling, write KASTER MFG. CORP., ALLENTON, WIS. Request *Brochure* No. 5.

Salt, Sand Spreaders Insure Non-Skid Streets

452 Up-to-date specifications, a descriptive catalog and case history reports on the Fox mountable materal spreaders for sand, cinders, salt and calcium chloride can be obtained without obligation from FOX RIVER TRACTOR CO., ROAD MACHINERY DIVISION, 1020 N. RANKIN ST., APPLETON, WIS.

Advantage and Economy of Above-Ground Sewage Pumps

453 These pumps are self-priming in lifts up to 15'. Descriptive literature reports that their installed costs have allowed savings of as much as 50%. And because they are above ground, they are easy to service and always remain dry. For complete specifications, write THE GORMAN-RUPP CO., 305 BOWMAN ST., MANSFIELD, OHIO.

Valve Literature

454 *Bulletins* 155, 157, 161 and 167, respectively, deal with rotovalves, accumulators, ball valves and wafer valves for water, sewage and air and power applications. They are available from ALLIS-CHALMERS MFG. CO., YORK WORKS, YORK, PA.

Concrete Force Mains

455 High initial capacity and a high sustained flow coefficient recommend this large-diameter concrete pipe for the transmission of water. For other advantages, write PRICE BROTHERS COMPANY, E. MONUMENT AVE., DAYTON, OHIO.

Controlled, Off-Street Parking

456 *Bulletin* No. 580 describes automatic, off-street parking lot systems that are flexible enough to meet individual needs, assure absolute control, operate at low cost, yield higher income. For a copy, write PARCOA DIV., JOHNSON FARE BOX CO., 4621 NORTH RAVENSWOOD AVE., CHICAGO 40, ILL.

Precise Reliable Water Meters

457 Sustained accuracy, silent operation, simplicity of design and trouble-free service recommend American water meters for municipal service. For descriptive literature, write BUFFALO METER CO., INC., 2902 MAIN ST., BUFFALO 14, N. Y.

Dry-Chemical Fire-Fighting Equipment

458 An information file folder on dry-chemical fire-fighting units and accessories for use at airports, plants, offshore drilling installations and any place where fire is a hazard has been prepared in loose-leaf form by FIRE BOSS INC., 4117-B W. VICKERY, FORT WORTH, TEXAS.

Melts Ice Faster

459 X-73 is recommended for removing ice and snow from sidewalks, driveways and loading docks. Improvements give it greater concentration of strength, make it faster acting and its melting action last longer. It is said to penetrate ice 32 times faster than rock salt. For full facts, write THE MONROE CO., INC., 10703 QUEBEC AVE., CLEVELAND 6, OHIO.

Pneumatic Sewage Ejectors

460 *Booklet* S-55 gives complete installation and operating data for both single and duplex pneumatic sewage ejector systems with discharge heads to 150 feet and able to pump 30 to 500 gpm. For a copy, write BLACKBURN-SMITH MFG. CO., INC., 57 GARDEN ST., HOBOKEN, N. J.

1960 Ford Trucks

461 Refinements designed to provide a greater degree of dependability, permit larger pay loads and more profitable operation have been incorporated in the 1960 Ford Super-Body truck line. For full facts, write FORD MOTOR CO., TRUCK DIVISION, P. O. BOX 658, DEARBORN, MICH.

For Watertight Sewer Lines

462 Detailed engineering data on rubber gaskets for concrete sewer pipe that give permanent protection against leakage in all types of soil and for every kind of sewage can be obtained by writing to PRESS-SEAL GASKET CORP., P. O. BOX 482, R. R. 6, COVINGTON RD., FORT WAYNE, IND.

(See page 64 for more Bulletins)

products for the public good
SINCE 1898
PERU, INDIANA
The first use of Automatic Voting Machines in Peru not only caused the Peru TRIBUNE to comment: "Popular . . . more than satisfactory. . . greater efficiency . . . economy . . . ease of operation . . . absolute accuracy . . . those responsible for providing the machines to be commended" . . . but in addition,
REDUCED THE COST PER VOTE NEARLY 50%
Available for service clubs and other interested gatherings, by 60 day reservation on your letterhead—a new 18 minute 16 mm color film illustrating potential benefits of Automatic Voting Machines.
AUTOMATIC
VOTING MACHINE
division of Rockwell Manufacturing Co.
Jamestown, N.Y.

Flink HDWS4 Completely Hydraulic Tailgate Spreader — A fleet of these efficient rigs help keep traffic rolling on the Illinois Tollway! Left-rear spinner permits easy 2-3 lane spreads in one pass; saves material. Hydraulically operated, Cab controlled, 2-speed auger permits instant change from abrasives to straight rock salt. Volume controlled by hydraulically operated feedgate.

Select FLINK SPREADERS

When Specifications Require

- **ONE MAN OPERATION**
- **LOW MAINTENANCE**
- **LOWER COST**

Flink LMC Hopper Spreader — Handles salt, cinders and sand for heavy-duty ice control. Pea gravel and chips for seal coating. Choice of PTO, hydraulic or gasoline engine drive, Cab controlled. Uses the only power transmission of its kind in the field. No worm gears, no "out-of-straight" shafts of U-joints. Differential equalized drive.

Flink HD42 Hydraulic Drive Tailgate Spreader — Self-feeding. Handles sand, chips, cinders, calcium chloride, chat etc. Forward spread for ice control, reverses for seal coating. Spreads from width of truck to width of street, thick or thin. Replaces tailgate on present trucks. Trips for dumping just as original tail-gate did.

Flink Model SS Pull-Type Spreader —

Can't be beat for simple maintenance and operation. For low cost ice control, seal coating and dust control.

BAKER Flink SNOW PLOWS

FOR FAST, LOW COST SNOW REMOVAL!

Reversible or one-way plows for 1½ to 5 ton trucks and up. Sectional or one-piece, full length cutting edge trip. Exclusive blade-hinge weldments in place of hinges cut maintenance. Full 3¾" wear on a 6" cutting edge. Operating position adjustable 65° or 75° from horizontal.

For literature or name of nearest distributor, write:

THE Flink co. **STREATOR, ILLINOIS**

530y North Vermillion Street

FREE catalogs

Write directly to the address given or use the Post Card on page 53.

New Line of Submersible Nonclog Sewage and Sump Pumps

463 Complete data now can be obtained on the Immersipump, which passes solids up to 2½", is available with a new Sealtrode sealed electrode floatless pump controller, and features a totally-enclosed oil-filled motor to assure watertightness. Write CHICAGO PUMP CO., ADVERTISING DEPT., 622 W. DIVERSY PKWAY., CHICAGO, ILL.

How Filter Elements Improve Tractor Operation

464 An 8-page booklet recently prepared by CATERPILLAR TRACTOR CO., PEORIA, ILL. answers the following questions: "What does filtering really cost me?", "Aren't all elements about the same?", and "Honestly, how often should elements be changed?". For copies, request *Form* DE928.

Plastic-Pipe Repair Clamp

465 In-field repairs of polyvinyl chloride plastic pipe are easily made with the new solvent-weld repair clamp. According to descriptive literature, half-soles are applied to damaged area with solvent-weld and clamped until "set". Welded section is said to be as strong as original pipe. Write KRAYLOY PLASTIC PIPE CO., INC., 4710 E. WASHINGTON BLVD., LOS ANGELES 22, CALIF.

3-Way Hazard Warning System

466 Flashers that alert the oncoming driver to the danger ahead, lanterns that locate and outline the hazard, and torches that guide the driver around the hazard make up this warning system. For a copy of a *Hazard Warning Lighting Manual*, write to R. E. DIETZ, 100 LEAVENWORTH AVE., SYRACUSE, N. Y.

Multipurpose Tractor Shovel

467 A full range of matched attachments is available for the instant-reversible Work Bull 1001 tractor shovel, which features 43° rollback at ground level, direct-line thrust, and has 1 cubic yard SAE rated capacity. For descriptive literature, write MASSEY-FERGUSON INDUSTRIAL DIVISION, BLOCK 1000 SOUTH WEST ST., WICHITA 13N, KANS.

Economical Sewer Pipe

468 A 4-page brochure describes and illustrates a new product development of TEXAS VITRIFIED PIPE CO., MINERAL WELLS, TEXAS. It is infiltration proof Delta-Seal Clay Pipe, which comes equipped with a perfectly-fitted factory-made joint of semi-rigid polyester and a unique rubber compression ring attached to the spigot.

Street Lighting Equipment

469 Octa-Tube lighting equipment for streets, highways and bridges are featured in a comprehensive catalog, available from MILLERBERND MFG. CO., WINSTED, MINN. Of particular interest to the municipality with limited budget will be *Form* C1070, which illustrates a low-cost floodlighting installation for mounting on wood poles that is both safe and maintenance-free.

(See page 66 for more Bulletins)

Today's smallest two-way mobile radio - actual size!

New General Electric Transistorized Progress Line

General Electric's new Transistorized Progress Line will fit in more places, in more different positions, than any other two-way mobile radio you can buy today.

Not only is this the world's smallest, lightest commercial two-way mobile radio, but standby battery drain is so low you need never turn off your TPL mobile unit, just like the clock in your car. You install no special generator, use less gas, require fewer engine jobs.

TPL is the first two-way radio that transmits up to 75 watts of power in high band . . . the first that really fits under the dash . . . the first to realize the full benefits of transistorized design (no more than four tubes) . . . the first to eliminate bulky cables through new one-piece design of receiver control and transmitter . . . the first with shielded dirt-free ventilation.

The new General Electric TPL ushers in a new era of convenience and reliability in mobile communications. Don't miss all the exciting details. Write General Electric Company, Communication Products Department, Section 1109, Mountain View Road, Lynchburg, Virginia.

GENERAL ELECTRIC

Communication Products Department

FREE catalogs

Write directly to the address given or use the Post Card on page 53.

Plastic Electrical Conduit

470 Kralastic semi-rigid conduit assures faster, more economical installation of underground circuits for electric lighting with less disruption of landscaped property. For details, and full facts on its application for municipal water service and drilling, write NAUGATUCK CHEMICAL DIV., U. S. RUBBER, 1044 ELM ST., NAUGATUCK, CONN.

All-Purpose Material Handler

471 Ten quickly-interchangeable attachments give the 180° Speed Swing the versatility to keep on the job all year 'round, handling a score of different materials faster, more safely. For full facts, write PETTIBONE MULLIKEN CORP., 4700 W. DIVISION ST., CHICAGO 51, ILL.

Construct, Repair Concrete Inexpensively

472 The 48-page "Gunite" booklet currently being offered by PRESSURE CONCRETE CO., 315 S. COURT ST., FLORENCE, ALA., contains valuable information on an economical way to repair, construct or line reservoirs, filter plants, sea walls, swimming pools, stadia and sewage disposal plants.

The SeweRodeR Opens Clogged Sewers *Faster!*

The "Automatic" SeweRodeR affords the most economical known way of opening sewer stoppages *faster* — RAIN OR SHINE.

- Flooded manholes are no problem. All set-ups and operations are from street level. A safety hose guides the rods into the sewer.
- It rods more footage in one run — up to 900 feet NON-STOP—due to its greater rod holding capacity.
- It rods more footage daily due to its super-speed and special safety control features which prevent damage to rods and machine.
- Under *average* conditions operator and helper can rod up to 4,000 ft. daily at a cost under 3c per foot.

THE ONLY RODDING MACHINE WITH POSITIVE, NON-SLIP ROD DRIVE

Let our representative give you the complete facts — or write for our 8 page SeweRodeR folder.

FLEXIBLE INC.

3786 DURANGO AVE., LOS ANGELES 34, CALIF.
1005 SPENCERVILLE ROAD, LIMA, OHIO
415 S. ZANGS BLVD., DALLAS, TEXAS

For More Efficient Sewage Plant Facilities

473 Considering new or expanded sewage treatment plant facilities for your community? Want to plan for optimum economy? Then before you decide on engine and compressor units, check with COOPER BESSEMER, MOUNT VERNON, OHIO for proper engineering assistance.

11-Ton, Self-Propelled Bantam

474 A new 12-page bulletin describes and illustrates the 11-ton Model CR-350 crane-excavator and the complete line of Bantam-built front-end attachments. The many applications for which this unit is being used and its job-speeding features are also portrayed. For a copy of *Bulletin* CR-350, write SCHIELD BANTAM CO., WAVERLY, IA.

New Motor Grader Brochure

475 "More For Your Money" describes the L-W line of motor graders, which consists of seven models ranging from 67-hp to 190-hp. Two POWER-Flow models are offered with full torque-converter transmissions; other models have 8 forward speeds, 4 reverse, and 3 optional creeper speeds. For copies of *Form* No. MG-155, write LETOURNEAU-WESTINGHOUSE, PEORIA, ILL.

Quick-Setting Concrete

476 CALCIUM CHLORIDE INSTITUTE, 909 RING BLDG., WASHINGTON 6, D. C., has prepared the pamphlet "How to Prepare Standard Calcium Chloride Solution" especially for the ready mixed concrete operator. Recommendations for procedure in making solution, a chart on recommended gallons of solution per batch and information on automatic dispensers are included.

Speed Winter Sewer Installations

477 The Inner-Circle method makes possible new sewer construction and the relining of failing sewers more quickly and without interference from inclement winter weather. It is said to be the most economical method of installing tunnels in stable soils and on mild slopes. For full facts, write AMERICAN-MARIETTA CO., CONCRETE PRODUCTS DIVISION, 101 E. ONTARIO ST., CHICAGO 11, ILL.

Heavy-Duty Automatic Transmission for Buses and Emergency Vehicles

478 *Booklet* No. 806 describes the heavy-duty Spicer 183 Turbo-Matic transmission for buses and emergency vehicles, which multiplies engine torque by as much as 5.6 times to provide unexcelled power utilization for improved operating efficiency and minimum maintenance. Write DANA CORP., TOLEDO 1, OHIO.

Cut Snow Removal Costs Up to 50%

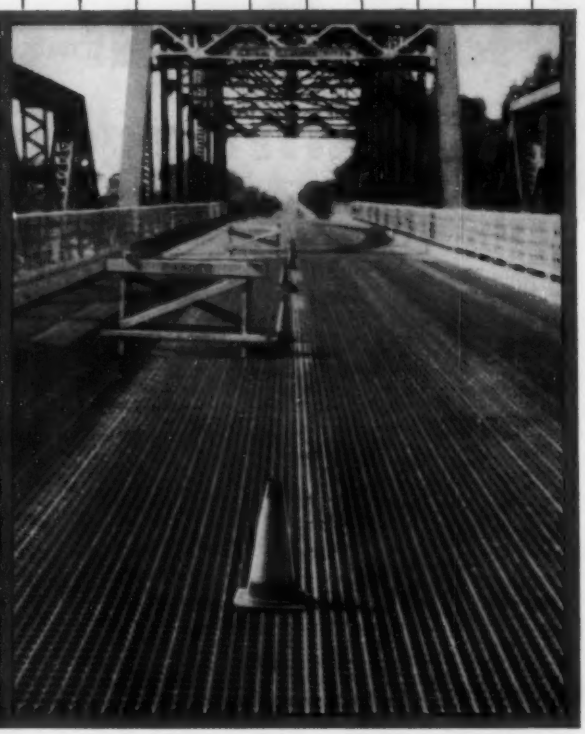
479 Literature from GAR WOOD INDUSTRIES, INC., WAYNE, MICH., points out why the Snowlift, a hydraulic snow plow control with clutch-type pump, can help you achieve such savings. It also fully describes components of the Snowlift Kit, the Hydra-Clutch pump, cylinder and complete hydraulic system.

Have You a Safe, Plentiful Water Supply?

480 This booklet tells how to learn if your community is running short of water, and what to do if it is. For a copy of "Water—Make Sure You'll Always Have Plenty," write THOS. F. WOLFE, MANAGING DIRECTOR, CAST IRON RESEARCH ASSOCIATION, 3440 PRUDENTIAL PLAZA, CHICAGO 1, ILL.

(See page 68 for more Bulletins)

REPORTS *on concrete bonding with* THIOKOL *LP/Epoxy compounds*



#3 ROLLING OUT A SAFETY CARPET

Steel grid road surfaces on bridges throughout the country have proved a source of frequent vehicular accidents. The Mossdale Bridge over California's San Joaquin River was no exception.

When cars passed from smooth concrete pavement to steel grid, there was an instantaneous and startling sound, vibration and change of wheel traction. This sudden change caused an instinctive reaction in many motorists to apply brakes abruptly, causing disastrous skids and pile-ups.

The California Bureau of Highways experimenting with THIOKOL Liquid Polymer/Epoxy Resin formula found a simple and inexpensive solution to the problem. Accident factors were eliminated by roller coating grids with LP/Epoxy compound and applying aluminum oxide abrasive to the still wet adhesive. In a test, one side of the Mossdale Bridge was treated. Since September of '56, no accidents have occurred in this area, while six mishaps have taken place on the untreated side.

Bridge and highway authorities everywhere can roll out a safety carpet for motorists—quickly, easily, economically—with THIOKOL LP/Epoxy. For full information, send the coupon.

Thiokol®

CHEMICAL CORPORATION

780 NORTH CLINTON AVENUE • TRENTON 7, NEW JERSEY

In Canada: Naugatuck Chemicals Division, Dominion Rubber Co., Elmira, Ontario

•Registered trademark of the Thiokol Chemical Corporation for its liquid polymers, rocket propellants, plasticizers and other chemical products.

FOR MORE INFORMATION: Mail coupon to Dept. 53, Thiokol Chemical Corp., 780 N. Clinton Ave., Trenton, N. J.

Gentlemen: Please send me available data on THIOKOL LP/Epoxy adhesives for highway use.

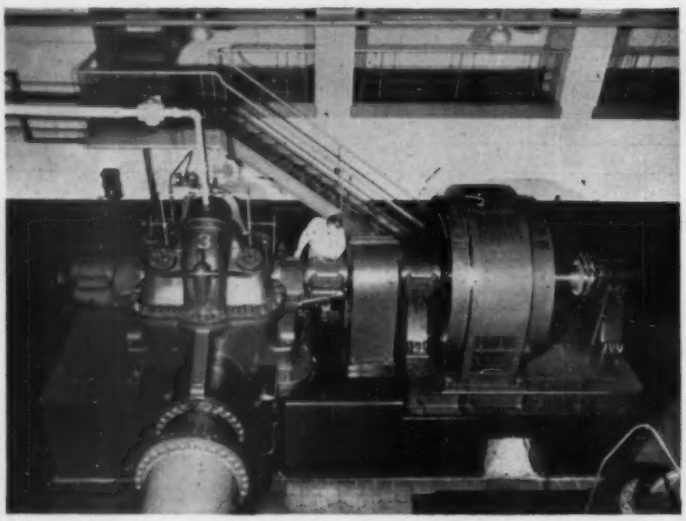
Firm_____

Street_____

City_____ State_____

Your Name_____

A case for F-M Split-Case Centrifugals!



Typical installation in Toledo averages 80.314% wire-to-water efficiency for year!

Exceptionally high and dependable efficiency with steady, low-cost operation year after year—that's the report from a host of municipalities and industries using Fairbanks-Morse pumps in their pumping stations.

Why? Ask stations like Collins Park High Service in Toledo, O., where five Fairbanks-Morse 36-in. Split-Case Centrifugal Pumps have been giving superb performance for 17 years. The No. 3 pump in the photo pumped 6,065,590,000 gallons in one year alone, handling 26.13 percent of the plant total, and consuming just 3.55 kilowatts hours per million foot gallons!

Your Fairbanks-Morse Field Engineer welcomes you to inspect many other reports like this from his files—reports revealing why no other manufacturer can match the experience of Fairbanks-Morse in providing pumps and drivers for both municipality and industry. Your F-M Field Engineer will be glad to work with your own engineers in selecting the best equipment for your specific requirements. Write Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.

See Sweet's Product Design Catalog File for complete F-M Pump Line.

FAIRBANKS-MORSE

a name worth remembering when you want the BEST

PUMPS • SCALES • ELECTRIC MOTORS • DIESEL, DUAL FUEL AND GAS ENGINES
LOCOMOTIVES • COMPRESSORS • GENERATORS • MAGNETOS • HOME WATER SYSTEMS

CATALOGS *for Improved Municipal Services*

Write directly to the address given or use the Post Card on page 53.

1960 Chevrolet Trucks

481 New style, new models, new torsion ride, new engineering for extra strength and savings are to be found in the 1960 line of Chevrolet trucks. For details, write CHEVROLET DIVISION OF GENERAL MOTORS, DETROIT 2, MICH.

Vandal-Resistant Parking Meter

482 This meter was specifically developed to combat the increasing and costly destruction of parking meter equipment and theft of meter revenue. Confident that it can give vault-like protection, its manufacturer, with each meter order, will issue and pay for an insurance policy indemnifying the purchasing city against physical loss due to vandalism. For full facts and salient features, write DUNCAN PARKING METER, 835 N. WOOD ST., CHICAGO 22, ILL.

Cut Trench at 2¢ a Foot

483 Now you can economically dig trench for utility lines, signal systems, street lighting installations and sprinkler systems. Ditch Witch trenchers do it for 2c a foot, working at speeds up to 12 fpm, at depths from 2' to 5', in any soil, and at widths from 3" to 12". For details, write CHARLES MACHINE WORKS, INC., 603 BIRCH ST., PERRY, OKLA.

Long Pinch Pintle Chain for Sewage Works

484 This chain is ideally suited for use with scum removers, grit washers and sludge collectors. It is long wearing, provides great strength at minimum weight, and is designed to prevent the entrance of grit. For full facts, write MOLINE MALLEABLE IRON CO., ST. CHARLES, ILL.

An Up-to-Date Sewage Treatment Plant

485 To get full value for your city's sanitation investment, write for bulletins or explain your problem to technicians of PACIFIC FLUSH TANK CO., 4241 RAVENSWOOD AVE., CHICAGO 13, ILL. The company gives prompt, thorough attention to all requests, from the smallest village to the largest city.

Protective Coatings

486 If you require a protective coating that must meet the challenge of chemical fumes, you will want to investigate Parlon chlorinated rubber based paints, for these paints assure long life, resist corrosion, and have the ability to cover almost any type of surface material. For full facts, write HERCULES POWDER CO., 900 MARKET ST., WILMINGTON 99, DEL.

Improved Police Motorcycles

487 These prove themselves on traffic control, criminal apprehension, residential and school patrol, special duty. Their improved features include mobile radio-phone, speedometer clock control, siren and pursuit lights. Their full story is told in "Intensive, Effective, Impressive Police Mobility". Write HARLEY-DAVIDSON MOTOR CO., MILWAUKEE 1, WIS.

(See page 72 for more Bulletins)

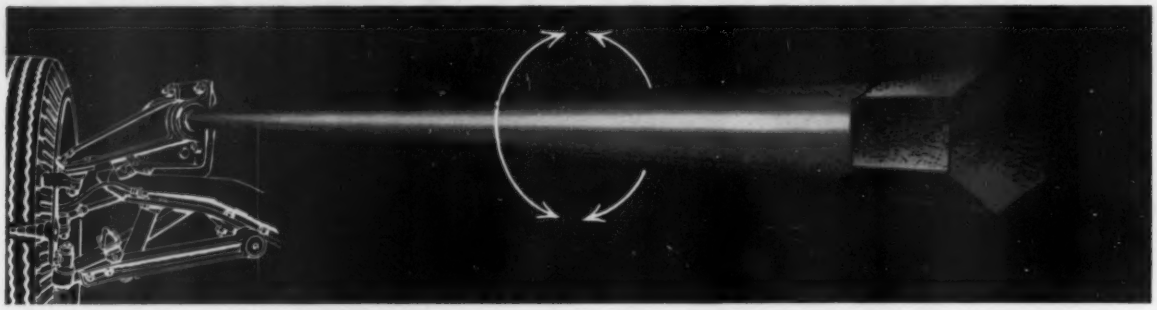
ANNOUNCING

Chevrolet trucks for 1960 with total newness!

Here comes the biggest improvement in trucking in decades . . . a revolutionary improvement that can make any truck route in America a far smoother road to bigger profits for you. Turn the page for the hottest news for truckers since coffee was invented!

new torsion-spring ride!

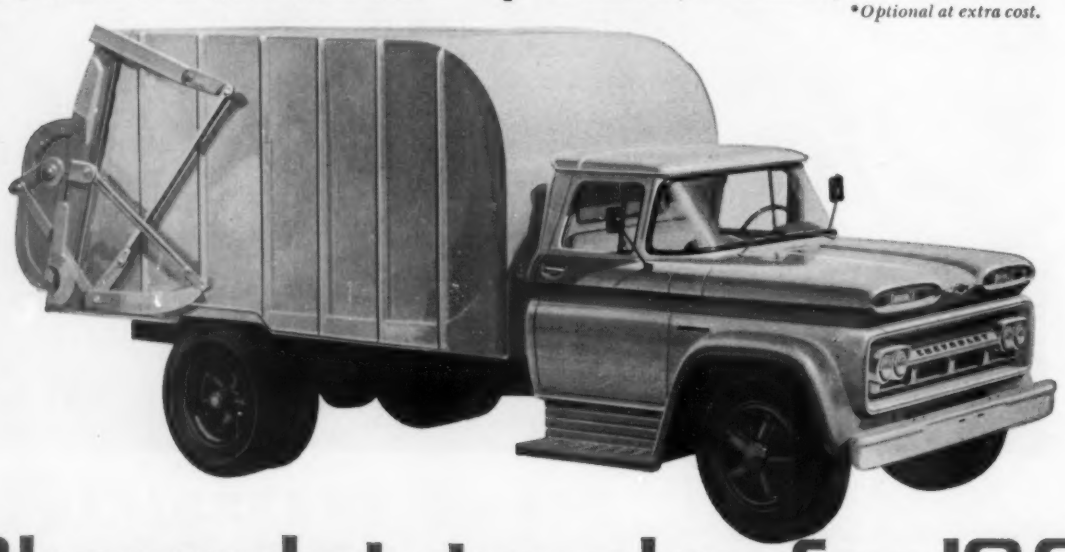
THE SMOOTHEST THING THAT EVER CAME BETWEEN A ROAD AND A LOAD!



Independent front suspension with tough torsion bar springs... for trucks! Years in the making, this totally new suspension system protects everything from bumps and jolts . . . provides a new kind of performance that lengthens truck life, protects cargoes, reduces driver fatigue and cuts maintenance expense to new lows. Independently suspended, each front wheel steps cleanly over bumps. And the friction-free torsion bars work to absorb each jolt or jar; they flex freely, even on the smallest bumps, yet have the capacity to absorb severe shocks. The result is a truck ride so wonderfully smooth that it must be experienced to be believed! And it's now *standard* in *all* classes of 1960 Chevrolet trucks!

Three tailored-to-the-truck rear suspensions complement the revolutionary torsion bar independent front suspension. *In Series 10 and 20 models,* frictionless high-capacity coil springs ease the rear axle over bumps. *In Series 30* and 40 models,* a new two-stage leaf spring provides tailored springing action . . . *and in Series 50, 60, 70 and 80 models,* all-new variable-rate rear suspension gives spring resistance that adjusts automatically to cushion any size load.

**Optional at extra cost.*



Chevrolet trucks for '60

new style, new models!

NEWLY ENGINEERED FOR EXTRA SAVINGS THROUGH EXTRA STRENGTH!

Rolling in on revolutionary torsion springs, these 1960 Chevies are smooth as silk yet tough as nails . . . totally new in scores of profit-boosting ways! In the light-duty class, for example, big new Series 40 chassis-cabs and stakes add to your earning power with G.V.W's up to 14,000 lbs. And virtually every model offers a new lower-to-the-ground build (without sacrificing road clearance) which improves truck stability and makes cab entry easier. In the big-truck class, too, Chevy for '60 sports big-profit G.V.W.'s – up to 19,500 lbs. in middleweights and 36,000 lbs. in heavyweights – with stronger components including new frames with more massive bracing and brawnier side rails, new bigger brakes, and the latest in low-cost V8 or 6-cylinder power.

New Comfort-King Cabs! There's more comfort than ever before, with 5 inches more shoulder room, 6 inches more hip room and more leg room and head room, too! A new wider seat, combining S-wire, coil and flat spring elements, offers a new high in easy riding. And Chevy's new double-walled cowl and new double-panel roof construction provide extra ruggedness and long life.

New custom cabs! Available in all 1960 cab models, they include distinctive exterior door pillar and rear belt line moldings . . . handsome chrome grille (light-duty models) . . . new Super Cushion Seat with foam seat cushion and backrest . . . sunshade, armrest, cigar lighter and control knob trim.

New compact L.C.F. models! Twenty-six new Chevrolet Low Cab Forward models with short cab design allow for maximum length trailers and extra cargo space. Short wheelbase and turning radius give exceptional maneuverability. Bumper-to-back-of-cab dimension is as short as 90 inches. G.V.W.'s go up to 25,000 lbs. and new cab design makes entering easier. And in series 50 and 60 models you can choose 6-cylinder or V8 power.

New tougher built tandems! They're the best built Chevy tandems yet with Hendrickson RT320 rear suspension, two 16,000-lb. Eaton rear axles and 7,000-lb. front suspension (9,000-lb. front suspension optional, extra cost).

And they're POWERED to improve your profit picture, too! Chevy for '60 offers a *wide* choice of better-than-ever power plants; in every weight class you can choose from famous economy 6's or V8's that lead the field for efficient short-stroke design! Three big sixes and four advanced V8's allow you to match the engine to your job for top performance.

Chevy's 1960 trucks with *total newness* are now on display at your Chevrolet dealer's, so stop by sometime soon! . . . Chevrolet Division of General Motors, Detroit 2, Mich.

CHEVROLET

with total newness!

FREE catalogs

Write directly to the address given or use the Post Card on page 53.

Factory-Jointed Clay Pipe

488 This pipe is ideally suited to difficult installation conditions. Its tight, precision-cast joints reduce infiltration, give better resistance to root penetration and eliminate the need for collaring, hot pouring and other time-consuming installation operations. For details, write THE ROBINSON CLAY PRODUCT CO., 65 W. STATE ST., AKRON 9, OHIO.

For Safer Winter Pavements

489 How to make snow and ice-covered pavements safe more quickly and more economically is a problem pondered by every municipality ever exposed to Dame Nature's "snow frolics." One suggestion recommends the use of straight rock salt. For details, write INTERNATIONAL SALT CO., SCRANTON, PA.

Swing-Type Check Valves

490 These heavy-duty check valves are new to the Mueller line. They have been designed for repeated opening and closing applications in water works pumping stations, water filtration plants and sewage treatment plants, and are suitable for horizontal or vertical installation on water lines. For descriptive literature, write MUELLER CO., DECATUR, ILL.

Lubricated Plug Valves

491 These valves demonstrate their versatility by operating economically and efficiently in a wide range of service applications, including sewage and water works. They can be installed in any position, operate easily in a quarter-turn. For Bulletin AE-1059, write W-K-M DIVISION OF ACF INDUSTRIES, INC., P. O. BOX 2117, HOUSTON, TEXAS.

Broader Insurance Protection for Municipal Equipment

492 Special insurance now gives virtually comprehensive protection to municipal equipment. Coverage includes fire, theft, earthquake, flood, windstorm, etc. For information on "All Risks" insurance for municipal equipment, write AETNA CASUALTY AND SURETY CO., STANDARD FIRE INSURANCE CO., DEPT. AC-1, HARTFORD 15, CONN.

Pavement Marking Bulletin

493 Proper and judicious application of traffic markings—lines, words, symbols—is known to increase capacity and safety of streets. *Traffic Control Manual* EMC-60 describes and illustrates standard pavement markings for center and median lines, crosswalks, intersections, approaches for obstructions, route direction, etc. Write ELECTRO-METALS CORP., 25 N. PINE ST., INDIANAPOLIS 2, IND.

Free Analysis of Your City's Refuse Disposal Methods

494 . . . can be obtained without obligation from a staff of survey engineers, specialists in analyzing municipal methods and costs of refuse storage, collection, transportation, disposal. Findings will be compiled in comprehensive report. Write DEMPSTER BROTHERS, DEPT. AC-10, KNOXVILLE 17, TENN.

Durable Metal Protection

495 Lasting weather resistance in every coat—primer, intermediate finish—is a feature of M50 anti-corrosive finish paints. For details as to why these pigments deliver greater metal protection, write NATIONAL LEAD CO., 111 BROADWAY, NEW YORK 6, N. Y. Request "Defense in Depth."

Parking Meters

496 If you are planning parking meter installations or replacement of existing facilities, you will no doubt find it advantageous to obtain the information on special planning programs offered by DUAL PARKING METER CO., SUBSIDIARY OF ROCKWELL MFG. CO., PITTSBURGH 8, PA.

Cemetery Planning

497 A new and comprehensive booklet on this subject contains chapters on designs for small and large sections, suggests cemetery rules and regulations, gives specifications for memorial work, and includes companion garden sections. For a copy of this free booklet, write ROCK OF AGES, BARRE, VT.

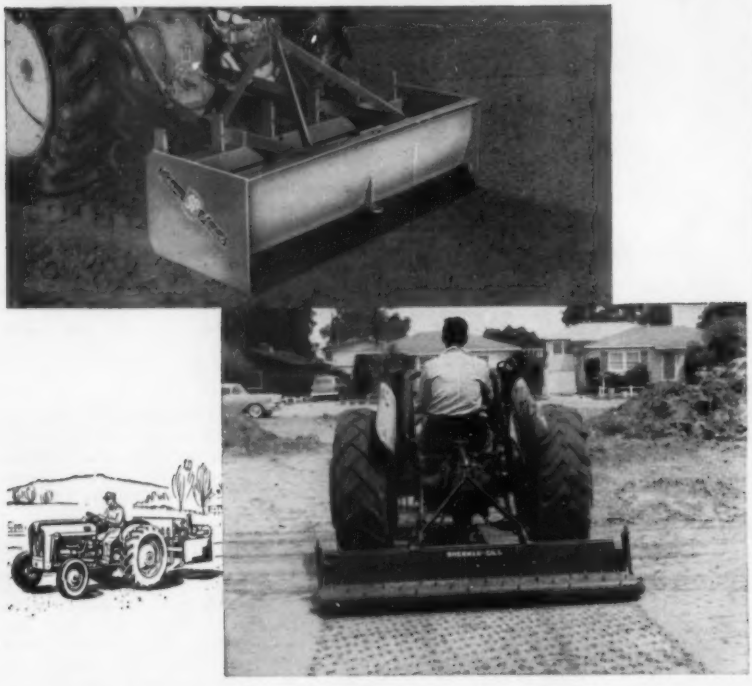
20-Foot Cast Iron Pressure Pipe

498 A complete line of cast iron pressure pipe in 20-foot lengths and in 4- to 12-inch diameters is soon to be produced by GRIFFIN PIPE DIVISION, GRIFFIN WHEEL COMPANY, COUNCIL BLUFFS, IA., under the Griffin-20 trademark. Longer lengths decrease the number of joints by 10% and help reduce handling and installation costs.

Improved Fire Engines

499 New features of the 900 Series cab-forward fire engines that assure greater performance and safety, increased utility and more efficient operation, contribute to less maintenance, are highlighted in a descriptive brochure, available from AMERICAN LAFRANCE, A DIVISION OF STERLING PRECISION CORP., ELMIRA, N. Y.

NOW! a New Process for Landscaping!



Two pieces of equipment instead of seven. Result: lower investment and a terrific saving in time of changing from one attachment to another. That's the capsule story of the new Sherman line of soilworking tools. The Sherman Landscraper and the Sherman-Gill Multi-Purpose Tool revolutionize landscaping.

The Sherman Landscraper does the rough grading. Then the Sherman-Gill scarifies, breaks clods, levels, finish grades, pulverizes, rolls and firms. And when you're finished, you just put the Landscraper on top of the Sherman-Gill and roll down the road to the next job.

The Sherman Landscraper and the Sherman-Gill are inexpensive, high productive landscaping tools. Ask for a demonstration today or write for Bulletin No. 1092.

POWER DIGGERS LOADERS — SHERMAN S PRODUCTS — SOIL WORKING TOOLS

SHERMAN PRODUCTS, INC. • Royal Oak, Michigan

Why the Oakmont Water Authority uses a FEMCO "CMC" System

for

- ***TELEMETERING***
- ***MONITORING***
- ***REMOTE CONTROL***

The territory served by the Oakmont (Pa.) Water Authority is on both sides of the Allegheny River. Much of the terrain is hilly, requiring the Authority to maintain five remote pumping stations, two reservoirs and seven standpipes. The most remote standpipes are about 20 miles apart, with the main filtration plant along the river approximately half way between them.

To unify this system as efficiently and economically as possible, The Chester Engineers, the Authority's consultants, specified a FEMCO "CMC" system of telemetering, monitoring and remote control, with all operations centralized at the Oakmont filtration plant. Requiring only a single pair of leased telephone wires, this Femco system

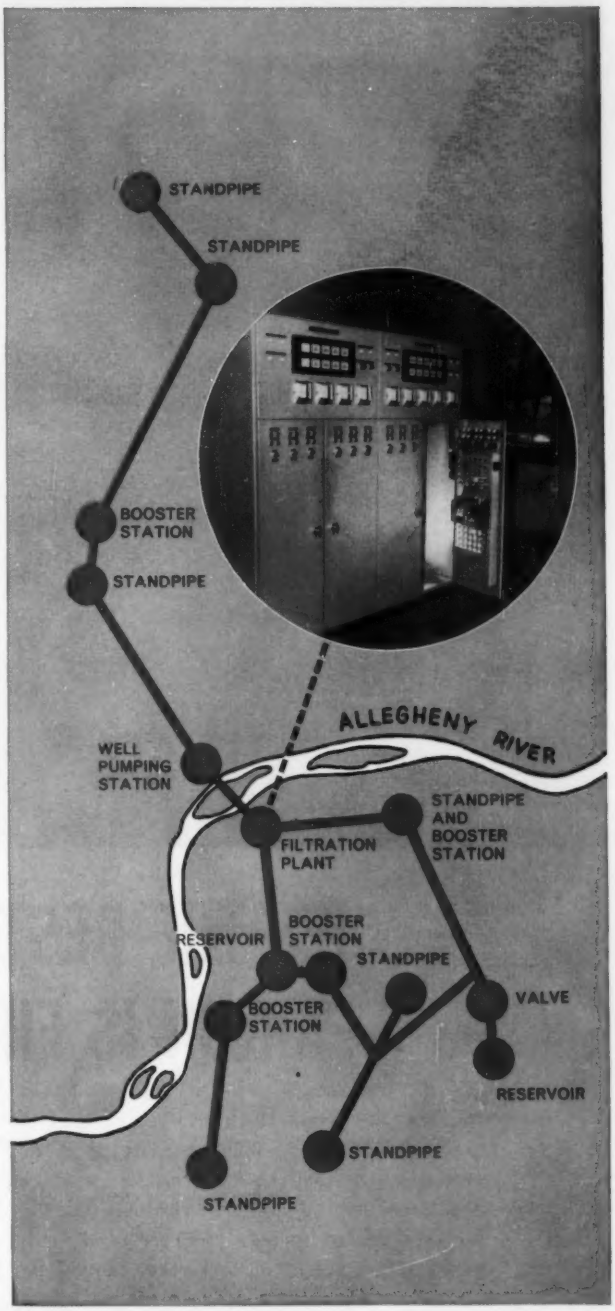
1. Telemeters water levels in standpipes and reservoirs to the filtration plant.
2. Monitors pumps and valves, so that the operator at Oakmont knows what the situation is at all times.
3. Enables the operator to operate pumps and valves from Oakmont, over-riding local automatic control.

The Femco system installed for the Oakmont Authority is based on the FEMCO Circuit Scanner, which is essentially a special type of synchronous commutator. Scanners at field stations operate in synchronism with master units at the central station. At each revolution of the scanner arm—every minute, at Oakmont—a circuit is set up for each function to be indicated, recorded or controlled.

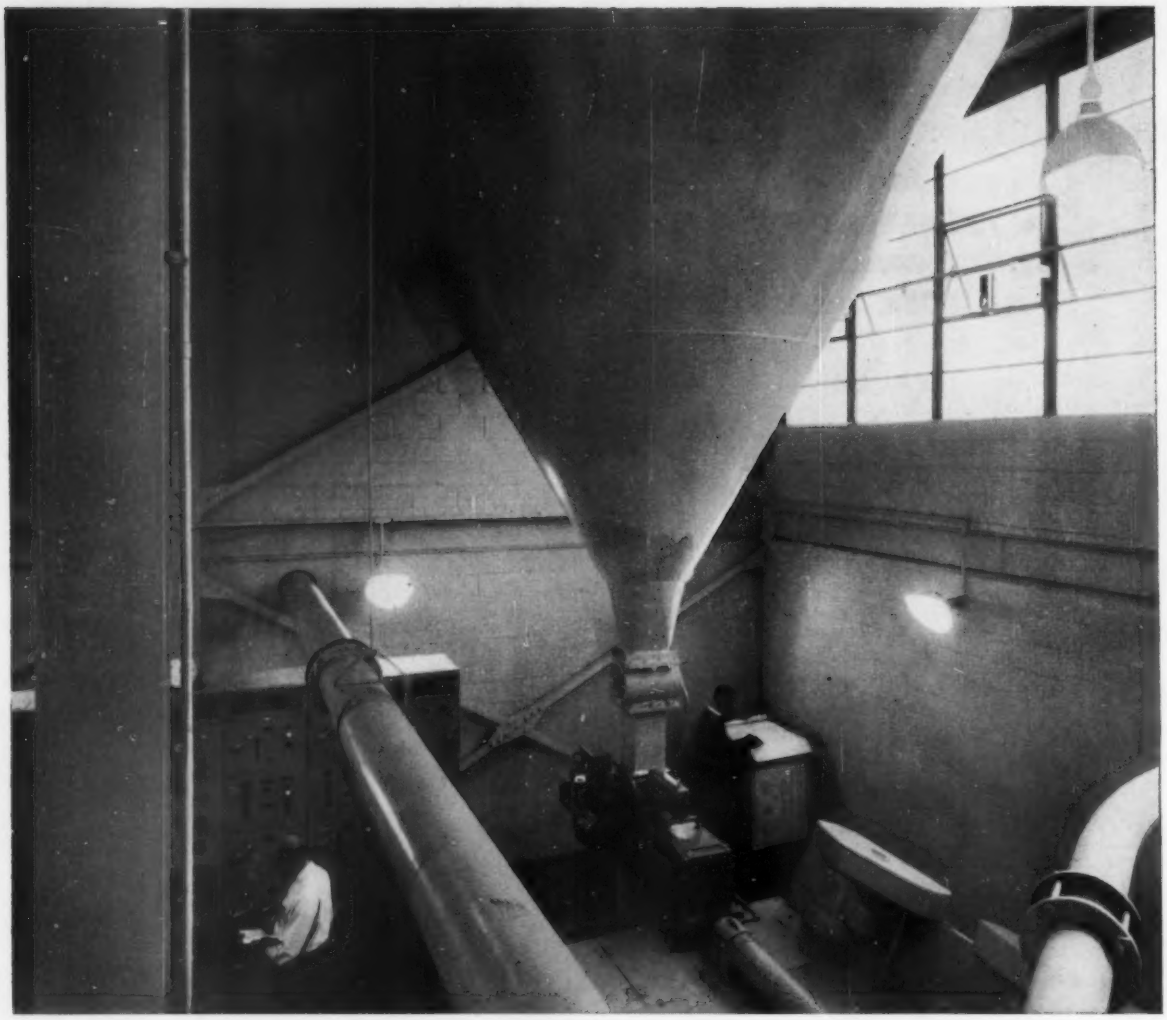
In other installations Femco "audio tones" have been used, while still others employ a combination of tones and Scanner. Tones may by-pass the Scanner or may be transmitted through it, since Scanner circuits will handle DC pulses and audio or carrier frequencies. This flexibility enables the FEMCO "CMC" system to meet the requirements of virtually any water system application.

For full information, write to FEMCO, INC., IRWIN, PENNSYLVANIA.

VMA 6922



Femco COMMUNICATIONS: Carrier and wired audio systems for all mining and industrial applications. MONITORING: Fans, circuit breakers, valves, pumps, compressors, etc. TELEMETERING: Flows, pressures and other functions. REMOTE CONTROL: Pumps, valves, circuit breakers, sacking pit covers, furnace doors, cranes, or other moving equipment.



WHEN THE BEST IS REQUIRED PARLON IS FIRST CHOICE

Here's a photograph worth a million words. It shows the Chemical Feed Room at the Middlesex County Sewerage plant at Sayreville, N.J. Throughout this plant a protective coating must meet the challenge of chemical fumes. That's why Socony Paint Products Company's Sovaklor Chemical Resistant Coatings based on Parlon® chlorinated rubber were selected for walls, beams, hoppers, pipes and other equipment. Perhaps Parlon's long life, resistance to corrosion, and ability to cover almost any type of surface material can solve your maintenance problems. Your supplier of quality paint can tell you more about Parlon, or write direct to Hercules.

Cellulose Products Department

HERCULES POWDER COMPANY

INCORPORATED

900 Market Street, Wilmington 99, Delaware

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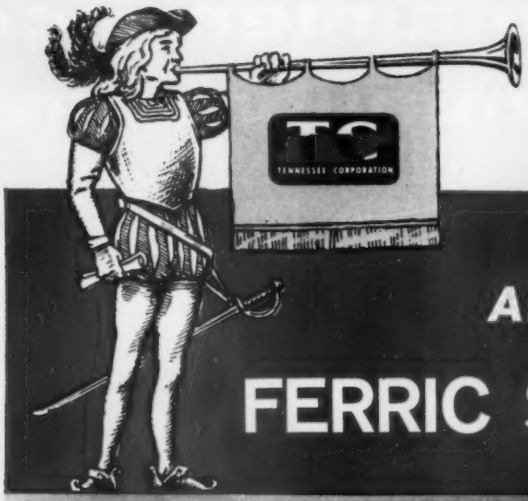


Announcing a New

FERRIC SULFATE PLANT

These new facilities now in operation at Copperhill, Tennessee substantially increase our production of Ferri-Floc and will permit us to supply the increased demands for this superior coagulant at all times.

ferri-floc
TC
FERRIC SULFATE

THE COAGULANT WITH THE PLUS FEATURES

Excellent Taste and Odor Control	*Turbidity Removal*
Increased Filter runs	*Manganese and Silical Removal*
Coagulation over Wide pH range	*Bacteria Removal*
Rapid Floc Formation	*Ease of Operation*
Efficient and Economical	

AVAILABLE IN BULK, AND ALSO IN DOUBLE LINED POLYETHYLENE BAGS AT NO EXTRA COST.

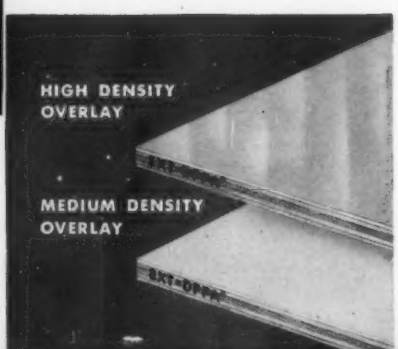
FREE BOOKLET — We will send you, without charge, a 38 page booklet that deals specifically with all phases of coagulation —Just make request on your firm's letterhead.

TC TENNESSEE CORPORATION

TENNESSEE CORPORATION
615-629 Grant Building, Atlanta 3, Georgia

Idaho cuts maintenance with quality signs

On standard black-background informational signs, reflective letters are applied directly to black High Density overlaid plywood, eliminating painting.



High Density overlaid plywood needs no protective painting; color (black, brown or amber) is in the overlay. Medium Density is for plain painted signs. Base panel is waterproof Exterior plywood.

and replacement costs of overlaid fir plywood

IDAHO STATE HIGHWAY DEPARTMENT
PLANNING & TRAFFIC ENGINEER: E. L. Mathes
TRAFFIC ENGINEER: M. W. Lotspeich
TRAFFIC REGULATION & CONTROL ENGINEER: John Boesel
SIGN SHOP SUPERINTENDENT: W. B. Woods

Illuminated for maximum night-time legibility this overhead installation is prime example of Idaho's efficient signing system.

OVER 7,000 MODERN OVERLAID PLYWOOD SIGNS of every type and size help make motoring a pleasure on Idaho's scenic highways. They also help the state highway department do a better signing job at considerable savings to taxpayers.

Until 1953, when Idaho switched to High Density overlaid plywood, maintenance and repair had been a constant problem. Weathering is unusually severe; temperature ranges from 115° above to 40° below zero. Vandalism damage from hunters in isolated areas and resultant progressive deterioration were particularly troublesome. Under these rugged conditions, overlaid plywood has performed consistently well—particularly in areas where signs are subjected to unusual abuse. As a result, maintenance costs have dropped sharply.

Initial fabrication and installation costs are also less. Records at the Idaho sign shop in Boise show a completed overlaid plywood sign costs between 10 and 15 percent less than aluminum.

DOUGLAS FIR PLYWOOD ASSOCIATION
TACOMA 2, WASHINGTON
—a non-profit industry organization devoted to research, promotion and quality control

DFPA TESTED QUALITY

time

city managements' greatest single . . . cost factor!

control it with

Lathem

TIME RECORDERS
TIME STAMPS
WATCHMAN CLOCKS

You can eliminate time leaks and increase the efficiency of all departments with a Lathem machine. Built for a long life of care-free service, Lathem machines are especially designed and engineered to provide for ALL of your time recording needs.

Just check this long list:

1) *payrolls* 2) *parking lots* 3) *garages* 4) *public buildings and watchmen's rounds* 5) *dating and numbering papers* 6) *mail arrival* 7) *booking and releasing prisoners* 8) *records of sequence handling* 9) *entry of important records and deeds and many others.*

Write, wire or call for complete information.

LATHEM TIME RECORDER COMPANY

82 Third Street, N.W. Atlanta, Georgia

GENTLEMEN: I'd like to hear more about the fabulous NEW Lathem Time Recorder.

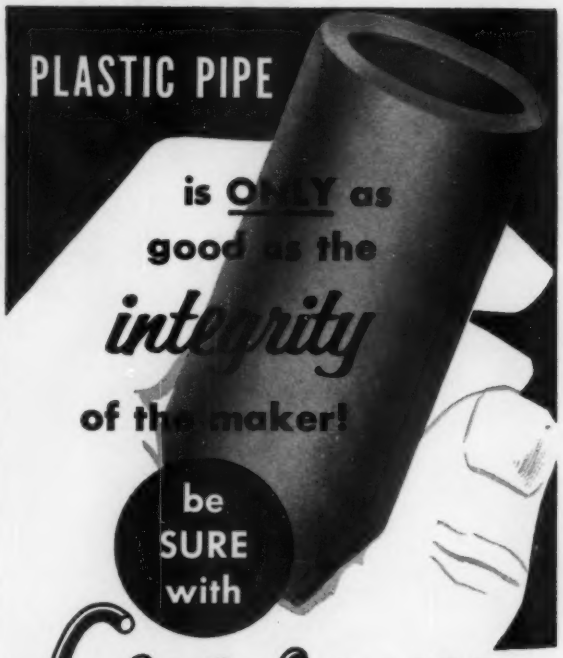
NAME_____ TITLE_____

DEPARTMENT_____

ADDRESS_____

CITY_____ STATE_____

PLASTIC PIPE



is ONLY as good as the *integrity* of the maker!

be SURE with

Cres LINE®

. . . GUARANTEED IN WRITING
to perform as specified

You can't tell by looking. One brand of plastic pipe looks about the same as another. Your only safeguard is the integrity of the manufacturer. Crescent Plastics is a pioneer in the field of plastic pipe, and plastics are our only business. Cresline pipe is guaranteed in writing to do what we say it will. We know it will perform as specified because we have the industry's most complete laboratory and subject all raw materials and finished pipe to the most grueling tests.

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Before you order any kind of plastic pipe, challenge us to prove you'll do better with Cresline.

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Complete Technical and Engineering Services Available

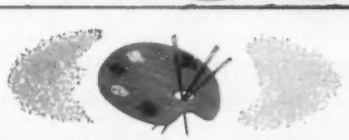
As time goes by, Rust-Oleum long wear assures lower cost over-the-years protection!

Rust-Oleum is distinctive as your own fingerprint. Accept no substitute.

Rust-Oleum's *unusual* resistance to extremes in rust-producing conditions—from sun and salt water to humidity, moisture, fumes, and weathering—assures you of lasting beauty. Long wear made possible, because Rust-Oleum's *specially-processed fish oil vehicle* works down through the rust into the tiny, microscopic pores in bare metal to STOP RUST. Important savings are realized by applying Rust-Oleum 769 Damp-Proof Red Primer *over rusted metal* after scraping and wire-brushing to remove rust scale and loose rust—as costly surface preparations are usually eliminated. See how Rust-Oleum can save you money... in your plant, or your home. Prompt delivery from Industrial Distributor stocks. Write for illustrated literature with color charts.

RUST-OLEUM CORPORATION • 2677 Oakton Street • Evanston, Illinois

RUST-OLEUM®



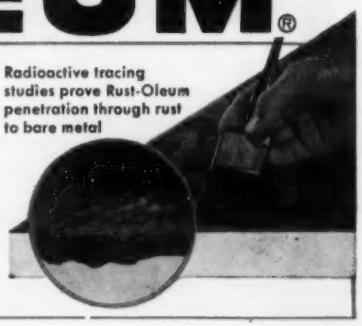
MANY ATTRACTIVE COLORS

Rust-Oleum finish coatings in Aluminum, White, Red, Gray, Green, Blue, Black, and Yellow provide double protection for tanks, machinery, girders, equipment, metal sash, wire fences, etc. Write for illustrated literature with color charts.

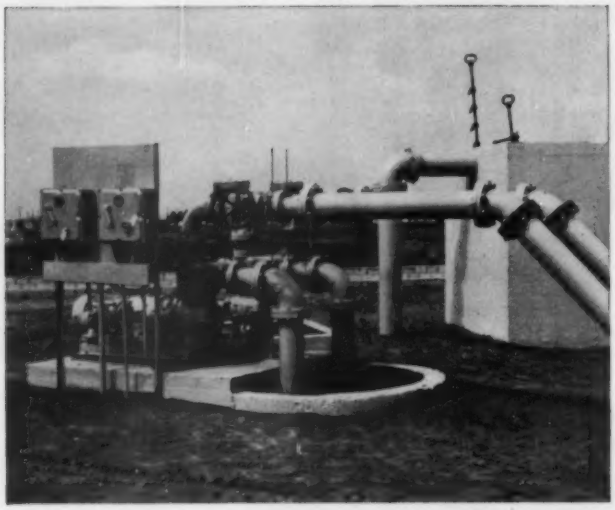
STOPS RUST!®

Rust-Oleum and Stops Rust are brand names and registered trademarks of the Rust-Oleum Corporation.

Radioactive tracing studies prove Rust-Oleum penetration through rust to bare metal



HIGH and DRY...not way down in the pit... GORMAN-RUPP SEWAGE PUMPS



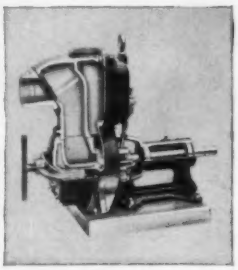
Twin installation of Model 14A2-B at a sewage treatment plant, Clair-Mel City, Tampa, Fla. Controls alternate pumps at regular intervals.

COST LESS TO BUY—Self-priming in lifts up to 15′, positive in action, nearly completely non-clogging. High and dry, their installed cost has allowed savings of as much as 50%.

COST LESS TO MAINTAIN—Almost no maintenance needed! No need to service by entering pit or raising pump. Just a turn of the wrist and the end plate is off.

PERFORM WHERE OTHERS FAIL—In lift stations and sewage plants, these Gorman-Rupp units have shown amazing records of savings . . . operating where others have failed. Let us show you examples.

2″, 3″, 4″ and 6″ pumps —connected to your power or ordered complete with power units. Write for complete specifications.



FAST-ACTION END PLATE—Exclusive end plate releases for access to impeller and wear plate. Two-vane open impeller specifically designed for handling spherical solids.

THE GORMAN-RUPP COMPANY

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for cemeteries planning NEW or ENLARGED sections

Here is the newest and most comprehensive publication available today on the subject of cemetery planning. It contains, for example, chapters on

- Designs for Large and Small Sections
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- Specifications for Memorial Work
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and many other ideas that will insure the continued beauty of your cemetery.

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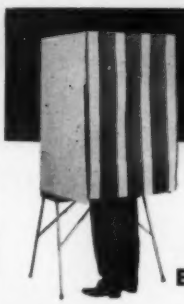
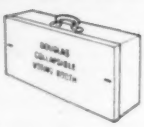
CEMETERY FEATURES • WAR MEMORIALS • BENCHES • STATUES • FAMILY MONUMENTS



★Douglas Uni-pack

COLLAPSIBLE ELECTION BOOTHS



Packaged for easy use, convenient movement and storage!

Douglas Uni-pack provides 6′1″ x 28″ x 28″ single stall booth yet collapses to suitcase size. Easy to carry and set up by any woman election offical. Ideal for augmenting voting facilities during rush periods. Now being used by all regional offices of National Labor Relations Board.

Vote by Ballot with DOUGLAS VOTING BOOTHS

★Small investment ★Storage and transportation costs are nil ★No breakdowns and maintenance ★No standing in line by use of plenty of low-cost units ★Only sure way of casting your personal vote

OTHER Douglas ELECTION EQUIPMENT

- Model B Collapsible Voting Booths
- All-Metal Folding Booths
- Collapsible Ballot Boxes
- Collapsible Election Tables
- Rigid Ballot Boxes
- Nested Ballot Boxes
- Voting Booth Lights
- Jury Wheels

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DOUGLAS MFG. CORP.
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★ Serving the entire United States and Puerto Rico since 1910

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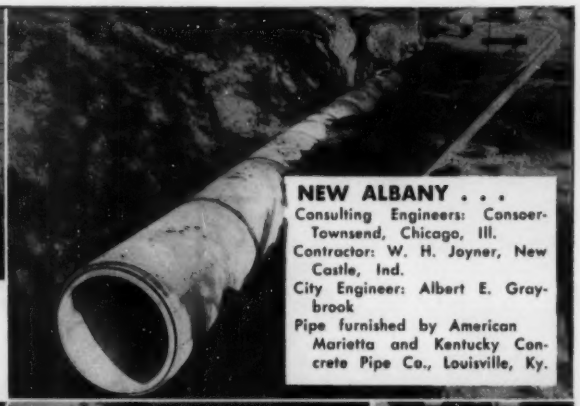
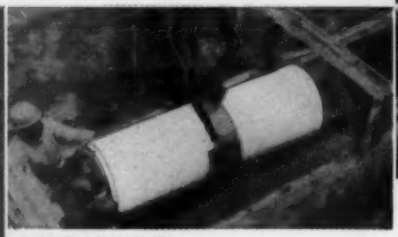
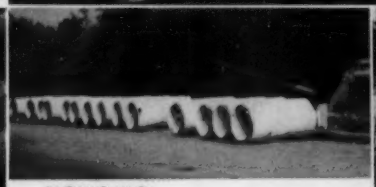
Consulting Engineers: Clyde Williams & Assoc., South Bend
Contractor: John Dehner, Inc., Fort Wayne
Resident Engineer: John Piersal
Pipe furnished by American Marietta, Fort Wayne, Ind.



NEW ALBANY . . .
Consulting Engineers: Consoer-Townsend, Chicago, Ill.
Contractor: W. H. Joyner, New Castle, Ind.
City Engineer: Albert E. Graybrook
Pipe furnished by American Marietta and Kentucky Concrete Pipe Co., Louisville, Ky.



FORT WAYNE . . .
City Engineers: Edward Green, Howard Biggs
Contractor: Barney Massa, Construction Co., Fort Wayne, Ind.
Pipe furnished by American Marietta, Fort Wayne, Ind.



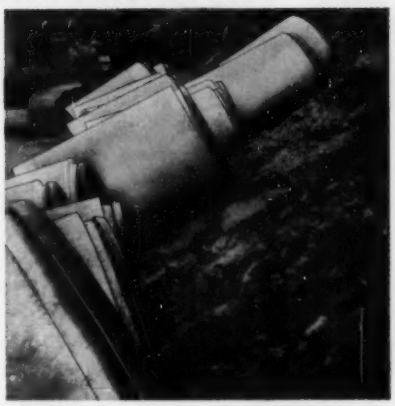
KOKOMO . . .
Consulting Engineers: Clyde Williams & Assoc., South Bend
Contractors: C & C Construction Co., Fort Wayne, Ind.
M. E. Foster Co., Kokomo, Ind.
Resident Engineer: Howard Coblentz
Pipe furnished by American Marietta, Lafayette, Ind.

INDIANA swings to Watertight Sewer Lines with PRESS-SEAL . . .

Large sewer pipe-line projects in Indiana are typical of the way engineers and contractors are turning to Press-Seal rubber gaskets for permanent protection against leakage in all types of soil and for every kind of sewage.

Press-Seal *confined compression type* gaskets are vulcanized from a special high quality Goodyear compound. They are made to last as long as the concrete pipes they seal. They save on both installation time and cost.

Detailed engineering data on request. Ask about how Press-Seal can best satisfy your special requirements . . . at lower cost . . . write today.



GARY . . .
Consulting Engineers: Hurst-Rosche & Assoc., Hillsboro, Ill.
Contractors: Witter Corporation, Schererville, Ind.
Resident Engineer: Vic Weidman
City Engineer: Harold Zweig
Pipe furnished by American Marietta

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RIGID PLASTIC PIPE made of

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THE TOUGH, HARD ABS PLASTIC
from **BORG-WARNER**

OUT-PERFORMS CONVENTIONAL PIPE IN VITAL MUNICIPAL INSTALLATIONS!

Ideal for main-to-house water lines • Underground sprinkler systems • Domestic gas • Electrical conduit • N.S.F. approved

This is America's truly *versatile* pipe — offering you a combination of advantages never before available in one piping product. Cycolac, the remarkable ABS plastic, has no equal for all-around serviceability. Miles of rigid plastic pipe made of Cycolac are now in use — serving and saving in cities like yours!

Write for the name of your nearest supplier

10 Reasons why you're right with Rigid Pipe made of CYCOLAC!

1. **HARD AND TOUGH — SUPERIOR TENSILE STRENGTH.** Excellent burst-resistance, even at high temperatures.
2. **LIGHTWEIGHT.** Easy to carry — approximately ⅛ the weight of comparable iron.
3. **RUSTPROOF, ROTPROOF.** Unharmed by soil acids — never corrodes or scales.
4. **NON-TOXIC.** Approved for potable water by the National Sanitation Foundation.
5. **CHEMICALLY RESISTANT.** Carries waste, salt solutions, organics with wet corrosives.
6. **LOW FRICTION LOSS.** Mirror-smooth interior surfaces insures higher rate of flow.
7. **VERSATILE.** Used for process piping — water systems — natural gas — electrical conduit.
8. **EASILY JOINED WITH METAL.** Used to replace corroded sections or to line metal pipe.
9. **EASY TO INSTALL.** Quickly jointed — less ditching — no costly handling equipment.
10. **LOW IN COST.** Less than most metal or plastic pipe — greater serviceability.

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DIVISION of BORG-WARNER
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WEST COAST: Norwick Standard Chemical Co., Los Angeles, Cal.
CANADA: Dillons Chemical Co. Ltd., Montreal & Toronto
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BW

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For all-'round deodorizing...

ROUNDS

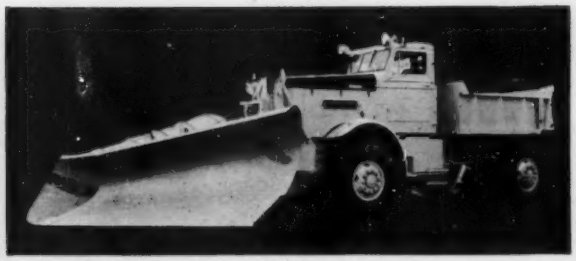
Fragrant, laborless deodorant discs for urinals, bowls, garbage pails, lockers, closets

Deodoroma ROUNDS cost in use averages only a *fraction* of one cent a day. Rounds are formed under 70,000 pounds pressure: are dense and durable. Fragrance is locked in: lasts until the last particle has vaporized—there's no harsh "moth cake odor." Packed eight to the telescoping box—each Round sealed airtight—easy-to-shape Holzit wire holder in every box. For literature write to The C. B. Dolge Company, Westport, Conn.

For free sanitary survey of your premises ask your Dolge service man

dependable DOLGE

WESTPORT, CONNECTICUT



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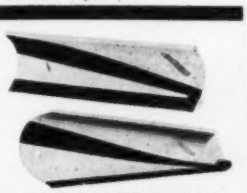
WAUSAU has maintained its leadership since the pioneer days of snow plowing through constant improvement in manufacturing techniques, the use of alloy metals and by closely engineering snow plows to the added power and speed of new trucks. The name WAUSAU on your snow plow will always remain a symbol of quality.

VEE TYPE PLOWS

The severe storms of last winter again prove the Vee Plows to be indispensable. There are 14 Models of WAUSAU Vee-Type Plows to fit anything from a farm tractor to a 54,000 GVW truck.

HIGH SPEED BLADES

Now available in discharge heights from 4' to 7' in a wide selection of shapes . . . designed for trucks of 2 tons to 15 tons capacity.



TRIP BLADE PLOWS

Trip Blade Snow Plows are practically standard equipment for city use—but only WAUSAU builds Trip Blades with simple, self-cleaning, readily adjustable compression springs . . . 12 Models available for almost any motive power.

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Truly a versatile year 'round maintenance unit . . . maintains, cuts and grades gravel, dirt roads, etc. . . . planes, breaks, removes ice and hard packed snow . . . full hydraulic cab control.

MATERIAL SPREADERS

Quick action, low cost self-contained unit . . . sturdily built . . . 8' to 20' spread width — hopper capacity 2 cubic feet.

Write

today for the name of your nearest WAUSAU distributor who will assist you in getting year 'round maintenance equipment to fit your needs.

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Truck Grader Ice Blade and Material Spreaders

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DOUBLES length of Filter runs. • REQUIRES only half as much wash water. • KEEPS Filters in service over longer periods. • INCREASES Filter output with better quality effluent. • GIVES better support to synthetic resins. • PROVIDES better removal of fibrous materials, bacteria, micro-organic matter, taste, odor, etc. • IDEAL for industrial acid and alkaline solutions. • EFFECTIVE filtration from entire bed. • LESS coating, caking or balling with mud, lime, iron, or manganese.

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One man and a Model D . . .

. . . all the crew your community needs on scores of jobs

Talk about variety. The low-cost Allis-Chalmers Model D can tackle more jobs in your community than any other motor grader. There's plenty of power for all regular grading work, plus optional equipment to handle jobs that would otherwise require special one-purpose units.

And your budget never had it so good. All this ability is still available at less than half the cost of a big machine. Look how some communities use their D's.

Cleaning ditches. A Model D can handle all kinds of grading . . . in a ditch, on a city street, on a farm road. The ROLL-AWAY moldboard picks up and moves bigger loads. You get more done than you'd expect with a machine this size. Front-wheel lean and power circle turn are available as optionals to increase load-handling ability and operator convenience.

move ahead with ALLIS-CHALMERS . . . .

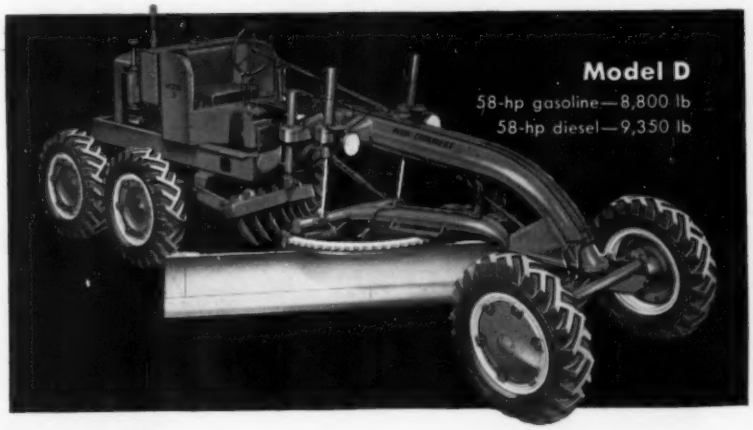
Snow clearing. The D's fine, sure control moves snow away from curb . . . 1-yd snow bucket loads it for disposal. Blade or V-type plows are also available for clearing work on outlying roads.

Road shoulder maintenance. A Model D does it in half the time, at half the cost. The D, with maintainer, lets one man do a complete, one-pass job on many miles of shoulder.

Scarifying. This 7-tooth attachment has 4,900-lb hydraulic down-force to scarify a 27¾-in. swath. Unique midship mounting lets you retain good steering control.

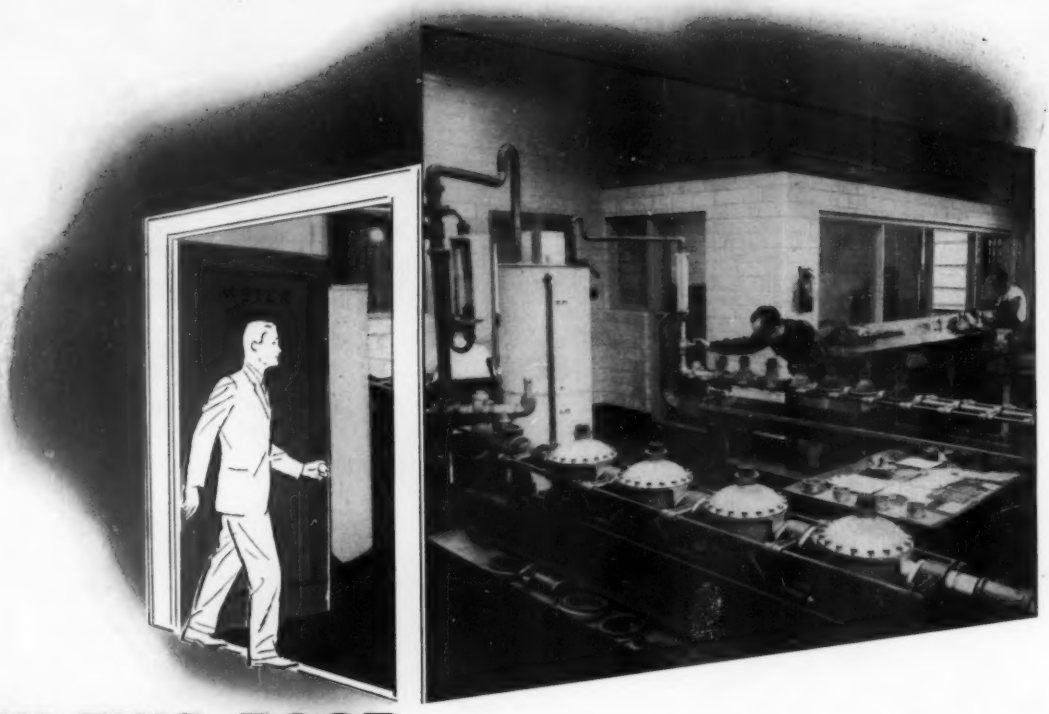
Loading. This D loads trucks, cleans road rubble, stockpiles. The ¾-yd bucket dump height of 8 ft, 8½ in. loads the largest trucks.

Check a Model D against your community needs. Here is a truly all-round, low-cost machine—proved by thousands of users. It's the economical way to put roads in top shape—and handle many other jobs as well. Your dealer will show you one in action. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.



ROLL-AWAY is an Allis-Chalmers trademark.

power for a growing world



OPEN THIS DOOR

before you open the bids

You learn more about true meter costs when you open the meters for repairs than when you open the bids.

A water meter is a fine instrument, and any fine instrument loses accuracy as it wears. Because of this fact, written between the lines of any water meter price are two items of cost you can't read for many years.

First, as a meter loses accuracy, it gives away revenue. Before its first overhaul it may give away twice as much money as it "seems" to save in its low-bid original price.

Secondly, to keep the meter accurate you may have higher repair costs over the years . . . or premature scrap-and-repair programs. Good meters often vary widely in this respect.

Water is your city's most vital service. You entrust it to the accuracy of your meters. Before you buy, walk into your meter shop. Talk to the men whose efforts guard your water supply. Ask which meter gives highest sustained revenue . . . with lowest repair and depreciation costs.

We sincerely believe the answer will be "Trident."

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OCTOBER
1959

The American City

This highly-mobile front-end loader does an excellent job of cleaning up intersections and isolated areas.

Rough Winter Proves Fond du Lac's Snow Program

Pooled equipment, good organization and pre-arranged plan of attack pay dividends

By **R. H. McMANUS**
City Manager
Fond du Lac, Wis.

True Wisconsin winter weather, although late in coming this last season, proved our newly adopted snow removal and ice prevention program. Numerous letters from industry, commercial houses and citizens at large attest to the success of the program. However, as a result of the winter's experience, we learned that several additional pieces of equipment are needed.

Actually, the program represents the first systematic and effective plan for clearing streets of snow and ice in the history of the city. Lack of coordination in the past may have been due to the commission form of municipal organization which fostered departmental autonomy and discouraged good centralized coordination.

Elmer Bray, our city engineer, developed most of the details of the program after conferences with the writer and the departmental heads and supervisors involved.

Fond du Lac's new system of snow and ice control represents an improvement over past practice in several ways. The personnel and equipment of several departments are now pooled where previously

The city's two motor graders windrow snow from the curb to the center of the street for removal.

A city-owned conveyor loader scoops up windrowed snow from the streets in the down-town area of the city . . .

. . . while a Ford tractor with a plow instead of a loader bucket provides an added service of cleared sidewalks.

just the men and equipment of the street division were used. This gives us more equipment and manpower, and in conjunction with this, we worked out a better plan of supervision.

Also, we subscribe to the services of Murray and Trettel, meteorologists of Skokie, Illinois, during the winter season to get more thorough and reliable forecasts of snow and ice than is available through local weather forecasts.

Formerly, two field supervisors controlled the work, one on the west side and one on the east, the latter also having to check into the garage to keep things going. We now use three supervisors, one on the west side, another on the east side and the third man at the garage. In addition, the city engineer exercises overall control.

These improvements permitted us to add snow plowing and snow removal at all public parking lots and institute snow removal at the entrances of all schools, both public and parochial.

This year we will also plow snow from the central business districts' sidewalks using the park department's small tractors. Although downtown merchants retain responsibility for the condition of sidewalks in front of their establishments, this plowing provides an added service and also improves our downtown snow-removal operation. Previously the merchants usually shoveled the snow into the gutters after city forces cleaned it from the streets, thus creating a messy condition.

Fond du Lac has a total of approximately 98 miles of streets classified as follows: 10.9 miles state trunk highways and connecting streets, 4 miles of business and industrial streets, 30 miles of primary and 53 miles of secondary streets and park roads.

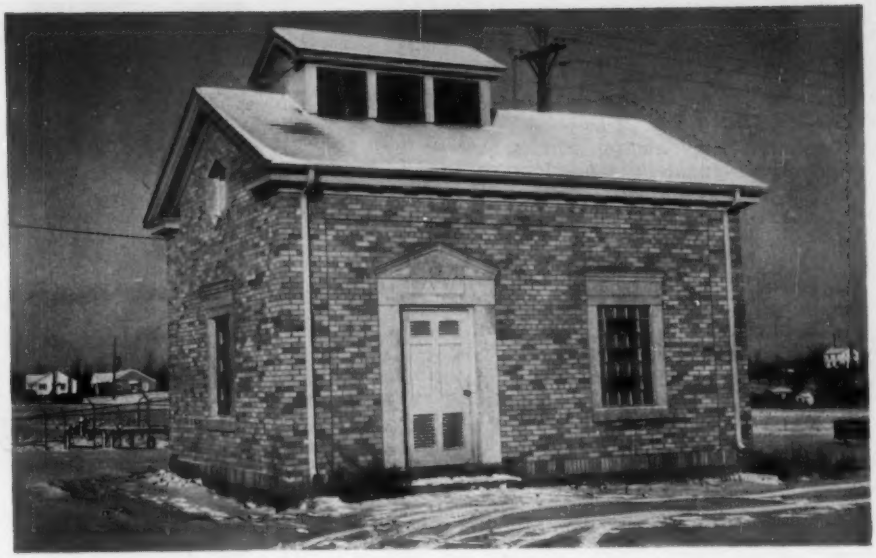
For normal operations involving the treatment of icy pavements, the regular street department maintenance crews handle the job utilizing three Tarco Scotchman salt spreaders, and three Central Engineering Company and two Swenson truck-attached sand spreaders.

Last year we were able to put ten plows into service plus the park department tractors for sidewalk plows. In addition we have two Austin-Western graders. For snow removal we used the graders for windrowing and an Athey snow loader and a Hough Payloader for loading. In addition we have made arrangements to rent equipment from a number of contractors giving us over 20 additional trucks and four more front-end loaders.

However, to do the kind of job we feel our citizens deserve, several additional pieces of equipment are needed. Accordingly we plan to purchase a four-wheel drive truck with a V-plow to handle situations which our other equipment cannot cope with, a snow blower in order to keep our own fleet and the rented trucks moving during the downtown snow-removal operation, and five additional one-way plows so that all of our trucks can be utilized for snow plowing in the future.

In view of the basic change in the approach to organization for snow fighting, we worked up the organizational plan in booklet form. This booklet lists the various pieces of city equipment to be used, department assigned to, and operator's name and telephone number. It also sets forth the general procedure to be followed for snow plowing, snow hauling and removal, ice prevention and the location of the parking lots and schools that now come under the program. Finally, three street maps of the city are marked showing the state trunk and primary street system, the bus routes, and the location of the schools and parking lots. This will be revised as needed and as experience dictates.

Up to mid-January we had little snow but for the next two months more than our share came to Fond du Lac. Although some of the storms were very severe, we were able to provide better service than that to which the citizenry had become accustomed. On occasions we had to ask for help from the county, but this will be remedied as previously mentioned by the purchase of our own heavy-duty truck and V-plow as well as the five additional plows. These latter units will help our crews keep on top of the big storms, reducing the need for extra heavy-duty equipment.



One of Rochester's newer well houses. This is a relatively standard design.

Rochester, Minn. Centralizes Its Well Control System

By **E. G. PARMENTER**, Engineer, Black & Veatch Consulting Engineers, Kansas City, Mo. and
G. E. MAREK, Superintendent
Water Department, Rochester, Minn.

The receiving units are mounted on an interior wall of each well house. Cylinders contain chlorine for chlorinating well supply.

A modern electronic genie has stepped in to help oversee and control the Rochester, Minnesota water system. This genie, supervisory control by name, watches and records tank water level elevations and distribution system pressures and also controls the water producing wells—all from a master panel in the control room of the Water Department office building.

At present the system controls and supervises ten wells and two elevated tanks, and it makes provision for additional wells and tanks just being completed or planned for the future. The Rochester system comprises 16 wells, five of which are located in the area called the main pumping station. These pump into a 500,000-gallon covered-surface reservoir from which the water is booster-pumped into the distribution system. The remaining 11 wells, located in outlying areas up to 4½ miles from the main station, pump directly into the distribution system.

Until recently a combination of automatic time clock and pressure devices controlled some of the wells while others were manually controlled by an operator traveling from well to well. Such supervision and control was difficult even when

augmented by a radio communication system. Now only the five central wells at the main station are manually controlled.

Genie Described

The supervisory control equipment, manufactured by the Hammarlund Manufacturing Company of New York City, utilizes electronic tone equipment for transmitting control, supervisory and telemetering signals over leased telephone lines. A separate, single pair, leased line circuit is required from each well to the central office equipment of the Northwestern Bell Telephone Company. At this point the lines from the wells are divided into two groups with each group connected to a single pair circuit running from the central office telephone equipment to the Water Department dispatch center.

The central control panel occupies one side of a 10-foot-by-12-foot room with ample space for enlarged facilities. The panel, divided into two sections, contains an illuminated distribution system map indicating the location of each well and storage facility; provision for 25 separate miniature control panels, 11 of which are in use; and provision for 20 miniature indicating and recording strip chart-type instruments, 12 of which are now occupied by Bristol instruments included in the Hammarlund Company contract.

Each well in the system has its own miniature control panel containing four light buttons, a pump control switch and a switch for silencing the alarm buzzer. The signal system is as follows:

Red light—pump in service
Green light—pump out of service
Amber light—pump and control switch disagreement
Steady white light—indicates line trouble
Flashing white light—indicates well power failure

From this panel operators maintain fingertip control of the Rochester water system. Note provision for additions.

Each miniature control group uses a set of tone frequencies that will not interfere with the control groups.

To start a pump, the operator merely puts the switch for that pump in the start position. This causes a tone signal of specific frequency to be transmitted from the dispatch center to all the wells in that group. However, only one well has receiving equipment tuned to this particular tone, and reception of it causes relays to operate and start the pump motor. Placing the switch in the stop position interrupts the signal and the pump stops. A small wall-mounted cabinet contains the well-house receiving equipment.

The supervisory operation is similar to the control operation except that it is in the opposite direction. Once the pump motor starter operates, contacts in the starter cause a different tone signal to be transmitted from the well to the dispatch center. Reception of this signal at the master control panel by a tuned

As residential areas grow, so does the need for water. A new 500,000-gallon Waterspheroid serves this area.

receiver causes relays to light the red lamp and extinguish the green lamp. When the operator stops the pump, the green lamp lights and the red lamp goes out. Should an abnormal operation occur, such as the well starting equipment tripping out from motor overload, the red lamp will be extinguished and the green lamp lighted. This will be accompanied by the lighting of an amber disagreement lamp to indicate the abnormal operation.

Additional supervisory features are provided by a white indicating lamp and a buzzer at the dispatch center. Normally, a tone signal, different from either of the two previously mentioned, is transmitted from the well to the dispatch center. Reception of this signal at the master control panel causes an amber indicating lamp to remain extinguished. If, however, this signal is interrupted by a failure of the leased telephone line, the white lamp lights, indicating line failure. Power failure at the remote well causes this same signal to be keyed or interrupted at a regular rate by a special circuit in the well equipment. This causes the white lamp to flash on and off, indicating well power supply failure. To attract the operator's attention to abnormal operating conditions, an audible alarm sounds whenever the white or amber lamps are lighted. The operator can silence this alarm by the specific operation of an alarm silence switch.

The telemetering system employed uses time-impulse equipment, manufactured by the Bristol Company, in conjunction with tone equipment. By this system pressure or tank levels are measured, transmitted to the dispatch center and recorded on the strip charts.

Need for Centralization

A brief account of Rochester's water system growth indicates the need for centralized control. Last year the Chicago Bridge and Iron Co. erected two storage tanks for the city, one a 1,000,000-gallon reservoir 50 feet in diameter and 70 feet high and the other a 500,000-gallon waterspheroid. This year the Graver Tank & Mfg. Co., a division of Union Tank Car Company, erected another 1,000,000-gallon reservoir 38 feet in diameter by 127 feet high in the northeast section of the city. A new well is also being constructed to serve this area.

This new area is on a hill about 125 feet higher than the main part of the city and the present distribution system. Water will be interchangeable between the two systems by booster pumping and pressure reducing valves.

The distribution system is also growing at a rapid pace. In 1957 the city contracted for the laying of 47,407 feet of mains ranging in size from 6 to 12 inches and in 1958 new main footage totaled 33,100 feet. All laying is by contract, but the city handles all inspection and mapping of construction.

Although the Water Department will realize a saving by use of this electronic control, the amount has not been determined. Rapid expansion resulted in a loss of control of pressure in certain areas before the system was installed, and in case of fire the department was unable to give the fire department and the citizens the type of service to which they were entitled. It was with these thoughts in mind that the Public Utility Board authorized the new work in order to give the public the best possible service and protection.

The engineering firm of Black & Veatch handled the design and telephone negotiations. Richard Schacht, one of the Water Department's regular employees did most of the installation work. Total cost of the equipment plus installation came to approximately $30,000.

First to Air Condition by Heat Pumps

The new three-story municipal building in Springfield, Ill. will contain 70,000 square feet of floor space, cost $2¼ million and be completed before the end of 1960. The Illinois structure is said to be the first major municipal building in the country to use heat pumps for year-round air conditioning.

The York Heat Pump system, which uses no combustible fuels, but only some 200 horsepower of electricity to run the equipment, will be located in a pent-house engine room. The heat-pump system extracts heat from outside air in the winter and from inside air during the summer. Two identical factory-assembled heat-pump "packages" will operate together when maximum heating or cooling is required. Simultaneous heating and cooling for different zones within the building will be available any time during the year.

Included among the notable heat-pump installations built by the Borg-Warner subsidiary is the one at Squaw Valley, Calif., site of the 1960 Winter Olympics. This supplies the refrigeration for the world's largest expanse of man-made ice and takes the heat generated to warm spectator areas and dormitories; provides hot water, and melts up to 10 feet of snow a month from the arena roof.

The Springfield, Ill. Public Building Commission, which let the heat-pump system contract, was authorized by the Illinois legislature to construct public buildings and may contract indebtedness by the sale of bonds. This removes the necessity for the use of voter referendums and increases in taxation for such construction.

Year-round air conditioning will be supplied by two factory-assembled air-source heat pumps in this new $2,250,000 Springfield, Ill. Municipal Building.

The author demonstrates the easy action of the wheel-and-gear-operated lubricated plug valve installed in an eight-inch line. Gear operation was provided on all lines over six inches in diameter.

Wheel and chain provide full control of gear-operated plug valves from the floor even when lines are located in hard-to-reach places.

Valve Standardization Pays Off

Savings in space, money and time since the 1954 construction of the Edgewater, N. J. sewage plant bring similar standardization in an expansion program

By **WALTER E. GEIGER**
Sewage Plant Superintendent, Edgewater, N. J.

Smaller inventory, gained storage space and easier maintenance—the results of standardization in valving during construction of the Edgewater, N. J. sewage purification plant—have proved highly significant in its operation.

Only five years ago the 1½-mgd primary-purification plant was put to work (see THE AMERICAN CITY, Nov. 1957, pp. 120-122) but increased demand has already resulted in a major expansion of plant facilities.

Two new clarifiers with Link-Belt traveling scrapers have been added to three completed under the original program and a new chlorinator building, featuring a Wallace & Tiernan V-notch Series A-731 chlorinator, has been placed in operation to increase treatment capacity to handle an additional 423,000,000 gallons per year contributed by the neighboring city of Cliffside Park.

Progressive Design

Problems encountered during original design of the plant were complex. The little borough is three miles long and only one-third of a mile in width, running along the base of the New Jersey Palisades on the Hudson River. Its resident population of 4,000 persons is boosted during daylight hours by more than twice that number of workers in nearby plants, a situation that called for extreme operational flexibility.

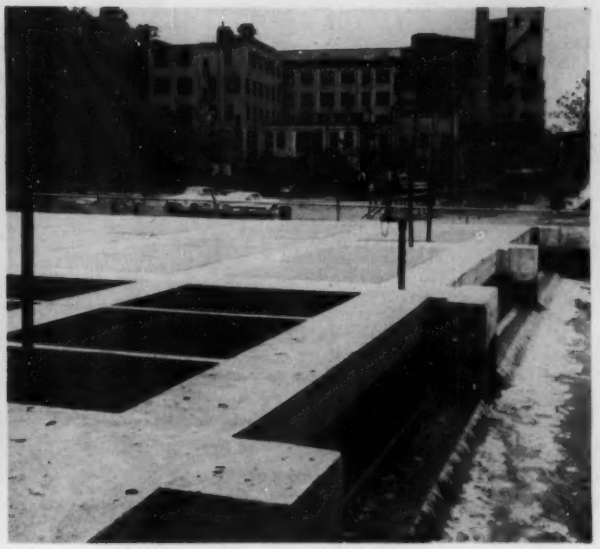
An interceptor sewer and four lift stations were required to pick up 11 raw-sewage outfalls that discharged directly into the river prior to construction of the plant. Complicating the problem still more was the necessity of locating the plant one-third of the way from the southern end of the interceptor, thus requiring that sewage be introduced from two directions.

Limited area and proximity to residential and industrial activities precluded standard methods of sludge drying.

Consulting engineer Roscoe P. McClave solved the first difficult control problem by designing a completely automatic telemetering system that records all performance at individual lift stations, keeps continuous records of data sent to the main panel by a total-flow transmitter located at a common plant inlet and provides automatic central control of all locations on the system from the control panel in the main building.

Sludge, digested in two heated digesters 35 feet in diameter and 22½ feet high, is pumped, or flows by gravity, to two Komline-Sanderson vacuum filters located in the sludge-drying building. Excess moisture is thus removed and the sludge is ready for transportation by truck to a landfill site or flash

Also part of the expansion is a new chlorinator chamber, equipped with a Wallace & Tiernan V-notch, Series A-731 chlorinator.



Two new clarifiers, major units of the Edgewater plant expansion, can be identified by the newer, lighter-colored grill work. Link Belt traveling scrapers serve the old and new units.

drying. In the latter case a belt conveyor carries it up into a C. E. Raymond flash dryer which reduces it to a powdery ash product. Then it is either bagged or dumped into a truck from the storage bin and carried away to the local parks and used as fertilizer.

Substantial savings through valve standardization become apparent in many forms. Some are readily ascertained, while others are somewhat intangible in nature.

Obvious advantages can be found in reduced inventory, for example. With identical valves used for all possible applications with each size of pipe, it is necessary to keep only a limited number of replacement parts for a given valve size.

Rockwell - Nordstrom lubricated plug valves were installed on process lines in the following places:

- **on pumps drawing sewage from the wet well to the detritor—there are 6-inch, 8-inch and 10-inch lines with valves of corresponding sizes;**
- **on supernatant liquor draw-off systems—on the upper floor of the two-floor digester building there are two 4-inch valves on the draw-off lines from both digesters, and two 6-inch valves serving the lower floor of each;**
- **on recirculation pumps returning supernatant liquor to wet wells;**
- **on the furnace that heats the supernatant liquor—three 4-inch valves control flow to and from the furnace;**
- **on lines in the pipe room at the end of sedimentation tanks, where sludge is drawn off from clarifier—six 6-inch valves;**
- **on recirculating pumps that return sludge to the digester—eight 4-inch valves.**

But lubricated plug valves are not used on process lines only. Other applications include city gas lines that provide heating fuel for plant needs until the present expansion produces enough methane gas to fulfill heat requirements.

They are also used in draw-off lines on the two new clarifiers now in operation.

The lubricated plug valve is of the "block" or complete shut-off type, but it is also used for throttling where adjustment is important. There are only three basic parts (body, cover and plug) and only the plug is movable. The plug moves by rotation only, eliminating the need for raising or lowering a movable valve member and reducing the possibility of collecting sediment or other foreign materials that might interfere with valve action.

It is a quick-opening unit, operated by a 90° turn. A stop collar indicates the position of the valve from full-open to positive-close, eliminating the questionable control "by feel."

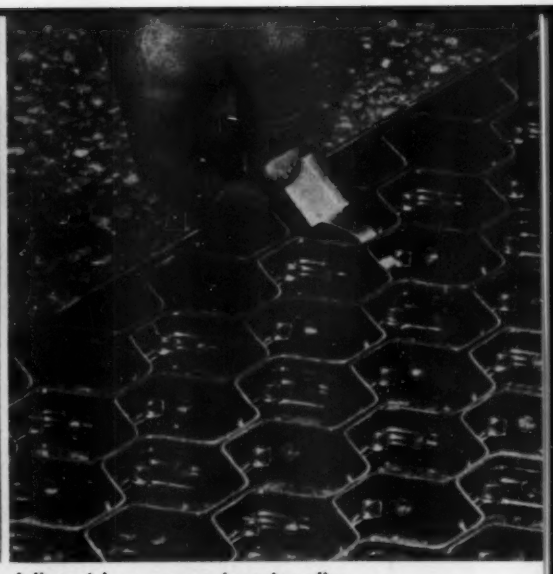
These valves require lubricating only once every six months, and that is the extent of valve maintenance.

Relatively buried, but no less important, are savings in the space and servicing operations at the plant. Thorough knowledge of construction and maintenance of the one-type valve saves man-hours and money, cutting bench time and paperwork. Valves are identical in basic design in all sizes. Rockwell-Nordstrom lubricated plug valves from 2-inch through 6-inch sizes are wrench operated and those in larger sizes are gear operated but all open or close fully with a quarter turn of the plug.

These advantages have been so important that standardization has been stressed in the expansion program as well as the original construction program.

Wrench operation was provided on all lubricated plug valves six inches in diameter and smaller.

Workmen lay out the metal mesh . . .



followed by one man inserting clips . . .

New Type Median Strip Costs Less,

An old street gets a new median strip, installed by production-line methods

By **A. V. PLUMMER**
Assistant to the Supt.
Cook County Highway Department
Chicago, Ill.

The Cook County Highway Department is using a new type of divider strip to reduce accidents and separate traffic movement on six Chicago streets. Busy Western Avenue, which extends 22½ miles, is one of six streets, totalling 36.05 miles and covered by the same contract, completed this year. Mileage on the other streets varies from 1.0 to 5.2.

The new median serves the same purpose as other types of raised dividers installed on Chicago streets in recent years. The big difference is in construction, for it is both faster and less costly than comparable types.

It consists of metal mesh, specified as 1 inch by 14 gauge, and concrete filling. When completed it presents a concrete surface 3 feet wide and slightly crowned. The flexible mesh permits shaping to provide left-turn bays at important intersections.

Key to the high rate of construction is the manner in which the mesh, supplied by Klemp Metal Grating Corporation of Chicago, is fastened to the street surface. This consists of placing clips through openings in the grating and fastening them to the pavement with pins driven to 3-inch penetration by a Ramset fastener.

The entire job was done on a production-line basis. Because of the large quantity of grating needed, trucks delivered specified amounts to various street intersections in advance of the installation work. One or more members of the installation crew then laid out the metal grating, following a transit line previously laid out by a surveying crew. A second crew member, carrying small clips, placed the tongue end of the clips through openings in the grating. These were located along the sides of the grating at 2-foot intervals and in the center of the grating at 3-foot intervals.

Next came the fastening crew, consisting of four men—three loading the guns and one firing. The crew kept six Ramset Model 122MD Duo-Jobmaster tools in constant use, with two additional tools kept in reserve and four additional ones in for cleaning and maintenance each day. As the man who fired the tool delivered one to the work cart, a loaded one was immediately ready for him. Either the No. 224 (very powerful) or No. 225 (extra powerful) charges were used to drive the Ramset fastener No. 3330 (⅜ inch by 3 inches) through the clip and into the pavement.

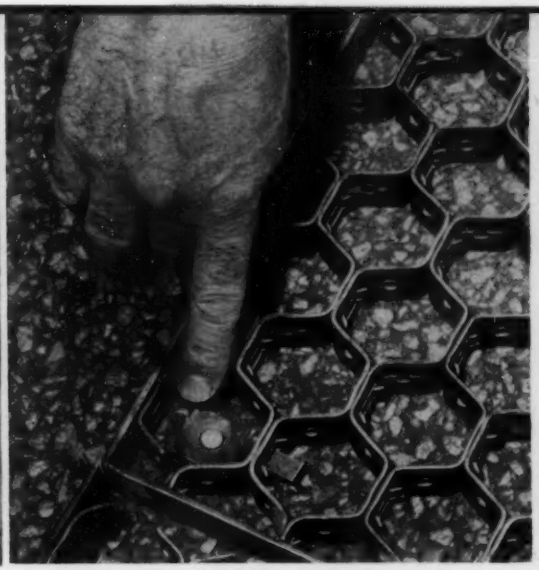
On one day, one man using the loading and unloading services of this crew, fired 5,800 rounds in a 9-hour day or slightly more than 10 rounds per minute.

The Western Avenue job required about 7,000 fasteners per mile. Intersections required additional fasteners, making a total of approximately 200,000 fasteners used on the 22½-mile stretch.

After the mesh was in place it was filled with concrete delivered in a ready-mix concrete truck. A crew with a vibrating machine and cement-finishing equipment followed immediately behind, finishing the concrete surface. Next came the application of a curing compound and after the concrete was dry, a hot mastic material to seal the joint between the divided strip and the street surface. The bead of mastic prevents water from entering the joint and heaving the strip.

Thus, the work was done without the need of opening the existing pavement as is required when constructing solid concrete medians. In addition, the work went on with a minimum of interference with traffic.

that are fastened to the pavement with a power tool . . .



the tongue end is bent down with a hammer.

Is Easier to Install

After the concrete is hardened (l), the joint is sealed . . .

and the job is complete (r). Note the left turn bay in background.

Status board at upper left with control panel between radio desk and switchboard; fire alarm paging system mike over emergency switchboard No. 2; wall maps above switchboard and radio desk with street addresses and first-in fire and police patrol districts.

City of Inglewood, Calif.

By **WALTER HAHN, Jr.**, Administrative Officer; **CARL C. CUPP**, Chief of Police and **NICHOLAS WARNER**, Fire Chief, City of Inglewood, Calif.

The City of Inglewood, Calif., recently placed in operation a new central communications facility. This system was developed as a result of analysis of the old method where the communications operation was divided into several sections and under the jurisdiction of four different departments.

Under the old system, uniformed fire and police personnel were utilized in their respective departments for telephone and radio communication as well as dispatching. The City Hall switchboard handled calls for city offices. Separate radio communication set-up for the Water Department was operated from the main pumping plant.

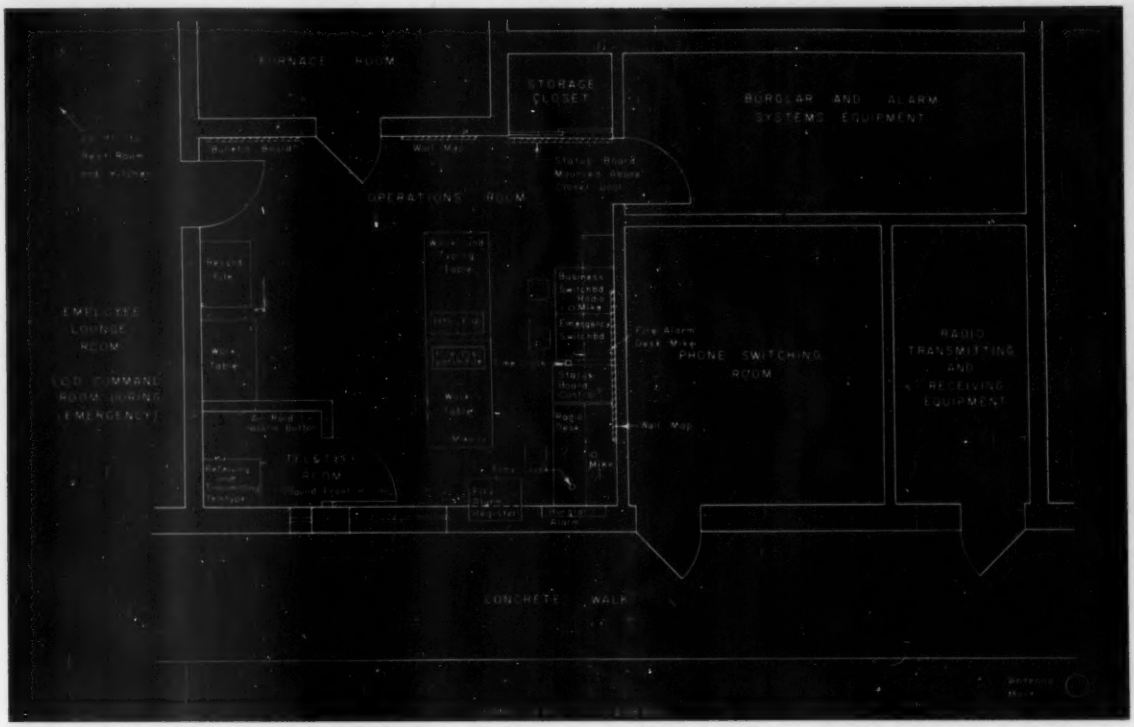
It was the feeling of the administrative officer, the police chief and the fire chief that the use of uniformed safety personnel for telephone and radio communications was a waste of trained manpower. These men were rotated and none became adept in the communications function. The old system used 15 persons yet there were innumerable delays in response.

The new central facility handles telephone service for all city facilities and offices, all radio communications, and also serves as the emergency dispatching station. Eleven people now man the operation and delays have been cut in half.

Equipment consists of a two-position switchboard with provision for 120 station lines. One switchboard position carries all administrative trunks and stations while the other has only emergency trunks and stations appearing on it.

Fire Station Contacts

Two methods of contacting the fire stations for dispatching equipment were set up. The primary system consists of a special loudspeaker paging network with a microphone located at the switchboard and speakers at each fire station. A row of push buttons is mounted in the face of the switchboard which enables the operator to select the fire stations individually or in groups. When the fire station or stations have been selected, another button is depressed which sends a loud tone through the speakers to alert the fire station. At night this action also turns on all overhead lights in the fire station. After the operator gives the location and type of fire to the station, a push button, located at the fire station, is operated and an acknowledgment lamp at the switchboard is activated. This indicates to the operator that the message was received, understood, and that the fire equipment is rolling. If the operator does not receive this acknowledgment, she immediately uses the secondary system to make



Plan of the City of Inglewood Communications Center.

Centralizes All Communications

certain that the message has been received.

The secondary system consists of manual switchboard station lines to all fire stations. A special jack provides group selection when required. A loud bell, instead of the speaker tone, is activated at any fire station called by this method. Again, at night, the overhead lights are turned on.

Status Board

A card fire dispatch file developed by the fire department sets out the equipment to be dispatched to any specific location in the city. The radio desk handles all radio communications for police, fire, and public works. A large status board is operated from a control panel between the radio desk and the emergency switchboard and indicates, by lights, the status of each radio-equipped vehicle in the city. Wall maps are located immediately above the switchboards and radio desk to enable the operators to locate specific addresses or streets. They also indicate the first-in districts for each fire station and the police patrol districts.

A small, soundproofed room is provided for teletype equipment and this is also handled by operators in the center.

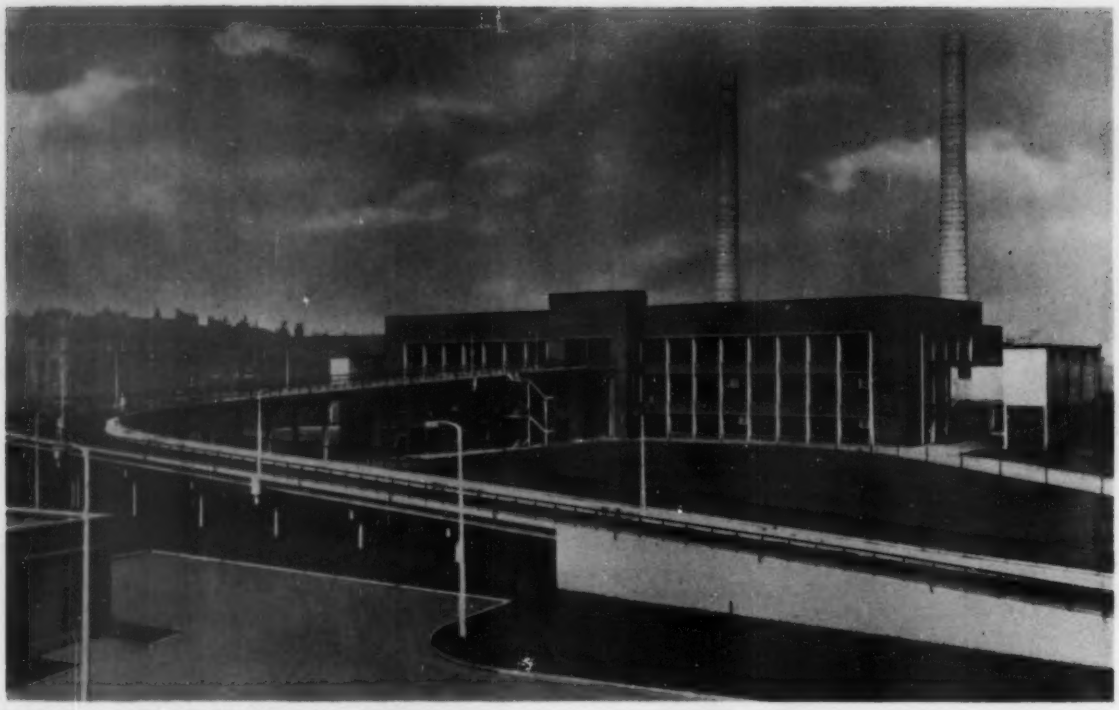
This centralized system is under the jurisdiction of the police department and in the charge of a sergeant who spends his full time as communications officer. All other personnel are women serving as radio-telephone operators. Ten people are employed in this capacity, providing a minimum of three operators during the normal business day and two operators for all other shifts. The girls in the center, although not safety personnel, do wear uniforms.

Although the centralized system has been in operation for only two months, it has proved to be most effective and coordination on emergency operation is excellent.

The girls employed as radio-telephone operators were hired several weeks before the center started operation and were given intensive training, particularly in emergency dispatching. During the first two weeks of operation, a police officer and a fire officer provided supervision over the operation. Since then, the center has been on its own.

Cost

The cost of remodeling rooms in the Annex, the installation of phone and General Electric radio equipment and the furniture required was approximately $3,000. It is estimated that savings in manpower and other costs will be close to $2,000 per month. There have been many visitors to the center and several other cities are considering similar installations.



Front view of Glasgow's new refuse disposal plant showing ramp leading to receiving room.

Glasgow, Scotland completes four-section refuse disposal plant capable of handling . . .

400 Tons Per 8-Hour Shift

Glasgow's new refuse disposal plant, the largest in Great Britain, satisfies a need felt for many years by this city of over 1,000,000 inhabitants. Until recently, the city struggled along with four obsolete plants all over 50 years old plus a fifth built in 1928. This last plant had been designed for the production of electricity, but owing to the changed character of the refuse, the generation of electricity was no longer an economic proposition.

New Plant

The new plant, constructed on a 22-acre site at a cost of approximately $5,000,000, comprises the refuse disposal works, a garage, vehicle repair shop, lubrication block and washing area. In addition, it contains ample personnel accommodations, a boiler house and an engineer's house.

The actual refuse disposal portion of the plant comprises four independent sections each having a capacity of 100 tons per eight-hour shift. Under normal conditions only three sections operate at one time, leaving the fourth section as reserve capacity for peak load conditions. This also allows for necessary maintenance during regular working hours. Presently the plant operates on two shifts per day.

Trucks enter the second floor reception bay by means of an inclined approach drive. The covered area beneath this floor accommodates the main handling, screening, sorting, and baling plant.

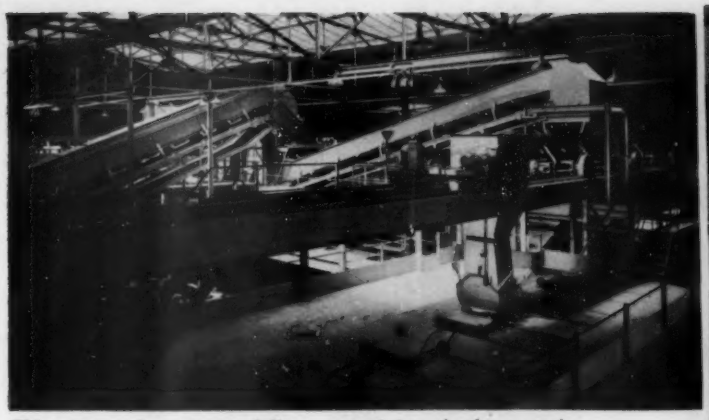
After weighing, the trucks discharge the refuse into any of four steel hoppers fitted with plate feeders that automatically take it to the elevating conveyors. These discharge the refuse into four primary rotary screens for separation of screenings under 1½ inches in size. Belt conveyors carry the screenings to secondary screens for removal of dust and cinders. The latter pass over garbage separators for cleaning; the debris is fed to the tailing belts or the dust conveyors.

Facilities on the reception floor provide for removal and transfer of bulky material, trade waste, and separately collected paper. Secondary stations for removal of bulky goods are situated alongside the elevating conveyors leading to the primary screens.

Salvage Baled

The recovery of most salvaged materials takes place on four horizontal sorting belts carrying rejects from the primary screens. Recovered salvage is dropped into storage bins for disposal to market.

Tins and ferrous metals are recovered in two ways: first by four overband electro-magnetic separat-



This system of conveyors delivers material to the furnaces for disposal. Note loading hopper and furnace at lower right.

Magnetic separators over the recovery conveyor pick up ferrous metal for salvage.

Operating floor of one of the four furnaces; each furnace contains five separate grates.

ors fitted over the sorting belts and secondly by four magnetic pulleys at the heads of the conveyor taking screenings from the primary to the secondary screens.

Belt conveyors carry the main stream of tins to central wharves for deposit into compartments. Belt conveyors also transport paper picked from the salvage recovery belts to a central point from the reception area.

Baling equipment consists of two hydraulic double-ram machines for scrap metal, one mechanical vertical press for paper, and two mechanical twin-rack balers for textiles.

Belt conveyors transport dust from the secondary screens and clean cinders from the garbage separators to large overhead concrete storage hoppers located outside the main building. These hoppers contain scraper conveyors for distribution of the material and hydraulically operated outlet doors for discharge into vehicles specially designed to prevent dust emission during loading.

Powerful fans exhausting to filters are connected to numerous points on the refuse handling, screening and salvage equipment to keep the plant reasonably free of dust and dirt.

Incineration

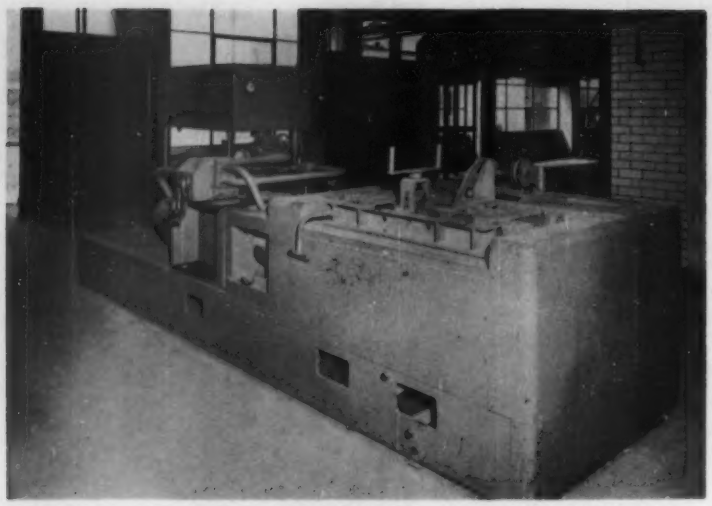
The remaining refuse from the sorting belts (called tailings) travels on additional belts that terminate in the incinerator building. Here another system of belts takes over, allowing the tailings to flow to any incinerator as desired. The final discharge to individual grates is by shuttle conveyor, which can also deliver to a storage floor for hand feeding in an emergency. Four mechanical dust suction units prevent dust dissemination at the reception hoppers.

Each furnace consists of a steel-cased unit with five hydraulically-clinkered grates. Two of the units have an additional hand-clinkered cell for the disposal of trade wastes passed from the reception house.

Each of the 20 main grates is supported on a carriage which can be withdrawn hydraulically allowing the clinker to fall to a skip beneath. Water sprays quench the clinker while the skip is stationary.

The skip operates in a closed tunnel and the fumes are drawn into the furnace. The four skip hoists are operated by push-buttons and discharge their load into a storage hopper. An electrical interlock makes it impossible to discharge the clinker from each grate until the skip is in the correct position below.

The plant also contains provisions



The recovery of most salvaged materials take place on four horizontal sorting belts. Scrap metal is baled in this press and then sold. Papers and textiles are also baled and sold.

for crushing, screening, and grading some of the clinker at the rate of three tons per hour.

Furnace gases from the combustion chambers pass through multivortex grit collectors incorporating an induced draft fan, centrifugal, primary and secondary collectors, and grit settling tanks. Cold air is automatically mixed with the gases to prevent overheating of the grit collecting equipment.

Two 220-foot-high chimneys serve the plant, with two furnaces connected to each chimney. They are of reinforced concrete construction and are fire-brick lined throughout.

Four control desks, one serving each unit, govern the operation of the plant. Each is fitted with an illuminated diagram showing the progress of operations in the units under control. A sequence-interlocking system avoids loading refuse on to a stationary conveyor. Before the plant can be set in motion, an audio-visual system with alarms and flashing lamps must operate for a predetermined period. An emergency stopping system of trip wires and push buttons is accessible from various strategic positions in the plant.

Plant lighting consists of three types, chosen to suit the level of illumination required. Mercury vapor lamps cover the dumping and incinerator operating floors, fluorescent lamps light the ground floor and the first floor of the screenings section and all offices and stores, and tungsten filament lamps are used to illuminate less frequently used areas.

A mechanical hot-air distribution system with four units on both ground and first floors heats the central portion of the main building.

Additional Features

The plant also contains a garage 410 feet long by 92 feet wide, a vehicle repair shop 18 feet by 12 feet, and a lubrication building 84 feet by 32 feet. The amenity block consists of a building approximately 315 feet long, containing a dining hall, two locker rooms, shower room, reception room, washroom, towel distribution, and towel laundry, first aid room and toilet facilities.

The engineer's house, situated at one corner of the site, consists of a living room, three bedrooms, kitchen and bath.

The new plant was built to a general specification prepared by Glasgow Corporation's director of cleansing, Mr. P. D. Fairlie, in collaboration with the city architect, Mr. A. G. Jury, and the consulting engineering firm of Merz and McLellan, of London and Newcastle-upon-Tyne.

A 6-Man Crew Plus Gear In One Truck

Sometimes you need plenty of men, sometimes plenty of equipment; often both. In any case, whatever the situation, the Town of Weston is ready. This central Wisconsin community recently bought an International light-duty Travelette truck with a six-man cab and a six-foot pickup body. Township Chairman Arnold H. Scheel says that the unit often does the work of two ordinary trucks.

Road clearance provides an example of this versatility. Power saws, brush hooks, axes, shovels and other tools must be carried in a pickup. The job also requires manpower and six men can ride inside the cab of the Travelette.

The County Administrative Officer

. . . provides money-saving efficiency while safeguarding the democratic processes within a county government structure

By **E. ROBERT STALLINGS**
County Manager, San Mateo County, Calif.

County government today is big business — oftentimes the biggest business in the county. Like any other large-scale undertaking, 32 counties in California have found it most profitable to create a position of central responsibility. Invariably whenever creating such a position has been discussed, critics have branded the plan as dictatorial. It is difficult to understand why, when well over 1500 cities in the United States operate successfully under the council-manager plan, and in virtually every case, the private citizen's access to, and understanding of, his government has been enhanced rather than made more difficult.

In recent years, however, the reluctance of County Supervisors to create a position of central authority has diminished to the point where virtually every large county in California, and many of the small ones, have established a County Administrative Officer position. Some title him County Manager, some Chief Administrative Officer or County Administrator. In 1950, only the counties of Los Angeles, Sacramento, San Diego, and San Mateo had authorized the central management position. So in eight years, 27 counties have recognized the necessity of improving their own county organization.

The problems posed by rapid population growth with the need to provide major services—welfare, hospitals, roads, water, sewerage, refuse disposal services—underscore the need for the county administrative officer plan to provide some measure of control and direction over the administrative process. This evolution by no means belittles the function and role of the Board of Supervisors but in reality frees it for the more important policy-making responsibilities demanded of the Board by this very same complexity of society.

The county administrative officer has the paramount responsibility of bringing together the factual information necessary for the Board to reach intelligent and sound decisions on problems that otherwise would be beyond its immediate capacity for investigation. He also must work full time at managing the county's affairs.

The functioning of the county administrative officer and his office is in the nature of a staff to the Board, leaving final authority with the Board where it legally and properly resides. The county administrative officer's authority is only that which is delegated to him by the Board, and, while he often makes recommendations on policy, the Board ultimately decides the policy.

Basically, the American form of democratic government derives its power from the consent of the governed. The county administrative officer concept is in accord with this ideal in that the elected officials are responsible for the operation of the government and directly accountable to the people. The role of the professional in government is not to assume infallible knowledge in his field or to induce a "leave it to George" attitude among the citizenry which may feel that the intricacies of government are beyond its understanding. Rather, it is his role to assist the duly elected representatives in the performance of their duties by the development of factual information for their policy-making functions.

The county administrative officer

position requires a man of several responsibilities:

(1) he has an advisory responsibility to the Board, which makes the final policy decision and is ultimately responsible to the electorate;

(2) he has an administrative responsibility to his Supervisors;

(3) he has a legal responsibility to stay within the bounds of his authority and responsibilities;

(4) he has a professional responsibility to his colleagues to maintain high standards of integrity and competence; and

(5) he has a moral responsibility to maintain the highest ethical and moral principles of government to which he professes allegiance.

The establishment of the county administrative officer position is not, *per se*, a guarantee of these goals in governmental operations. In order to be successful, the position must reflect a responsiveness to the needs and desires of the citizens. Efficiency means that public officials should accomplish maximum results at lowest cost. The conflict between responsiveness and efficiency lies in the wastefulness of human nature, and yet the latter enters into all organized human endeavor. The purpose of government (and the administrative process) is to serve society as efficiently as possible without denying responsiveness to human desires and needs. Since there is no escape from human nature, the selection of public servants should be based on their recognition of the need to be both efficient and responsive. Thus, the public remains safe from a bureaucracy which relies upon a series of inflexible rules to deny responsiveness.

It was pointed out earlier that the need for a county administrative officer has resulted from the rapid growth of our population and the complexities of large-scale organizations. The problem of governmental control is made serious by the fact that those who legitimately exercise it cannot cope with its size because of the lack of time to go into details and the further fact that the absence of any accountability may permit employees to further their own purposes rather than those of the public which entrusts them with the responsibility.

The county administrative officer concept has brought into focus more sharply one method of control—the budget. The budget is essentially an expenditure plan for a specified period of time. In order to establish a budget two kinds of decisions must be reached—(1) what are the objectives to be reached (kinds and quality of services to be provided), and (2) how much money, if spent effectively, is needed to attain these objectives. An understanding of these factors is basic, for when there are demands for governmental economy, the questions ought to be asked, do we want fewer and poorer services by cutting the budget, or do we expect to retain these services by increasing efficiency—a much more difficult process which requires painstaking re-examination of administrative procedures. This can only be undertaken with the help of the members of the administrative organization whose efficiency is to be improved.

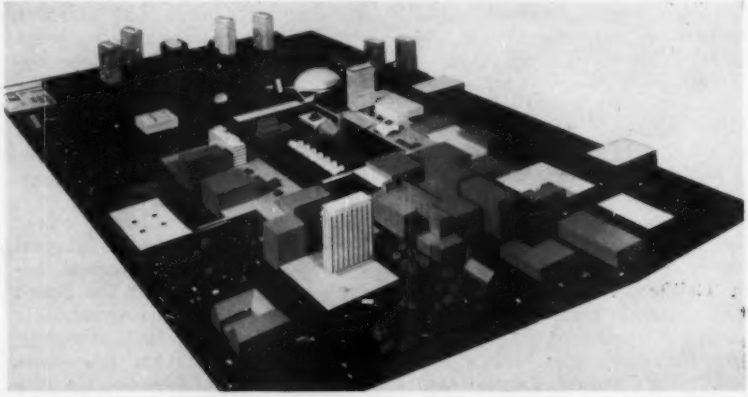
The budget, therefore, becomes a tool that allocates resources and determines service levels. The control of efficiency, however, lies in the acceptance of a professional attitude towards management tasks and a development of technical skills to find efficient ways to do the work.

Budgetary controls only point up the final decisions that must be made by the Board of Supervisors as to the expenditures required for performance of the governmental obligations. The administrative development of the budget is designed to provide the Board with unbiased facts from which it can make clear-cut decisions.

Efforts to evaluate the effectiveness of the county administrative officer plan have been attempted by the use of many criteria. Significantly, however, the Boards of Supervisors in California counties employing a county administrative officer, and the taxpayers as well, have apparently been well pleased with the results, for no county has abolished the position of county administrative officer. It appears safe to predict that by 1965, virtually every county in the state will have a central management position and that some of the outmoded legislation relating to county governmental organization will be drastically revised to set up the legal framework for the provision of such a position with the necessary authority and responsibility to perform effectively in the interest of sound county government administration.

Joliet Peeks at Its Future

Civic leaders of Joliet, Ill. recently received a preview of how their city could look in 1980. Graduate students of architecture at the University of Illinois, who have been working on a possible redevelopment plan for Joliet, presented the results of their studies before some 400 persons. The project was sponsored by the Greater Joliet Committee, Inc., a division of the Joliet Association of Commerce. A scale model, 7 by 11 feet in size, built by the students, showed how the "new" Joliet might look. To illustrate features of the design, the students also showed plans for four levels: underground, including building service; ground level showing pedestrian traffic through the area and diversion of motor traffic around it; roof-deck shops and civic center plaza level; and roof plan, including penthouses.



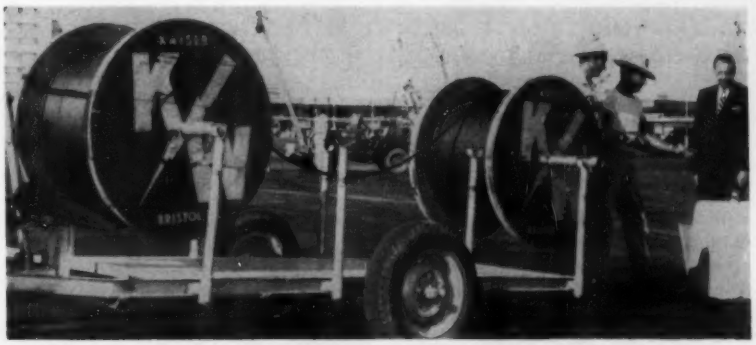
Joliet's cluttered downtown can have this park-like appearance if civic leaders desire. The white buildings are proposed new structures; the dark are existing buildings which would remain.

A glimpse of Miami International Airport.

1100 Flights a Day

One out of every five persons in the State of Florida lives within ten miles of the Miami International Airport. In the last nine years United States air traffic increased 167% while Miami's air traffic increased 356%. The Civil Aeronautics Administration estimates that the air traffic at Miami International Airport will increase 62% in the next six years.

January 26-February 1, 1959 was Miami Aviation Week. It celebrated the completion of the terminal at the tremendously busy Dade County airport, said to top all other airports in volume of air cargo handled. Owned and operated by the Dade County Port Authority, this international airport is located on the northwest fringe of the City of Miami. Its 3,000 acres, equal to 200 Orange Bowl Stadiums, contrast with the 230-acre airport that was acquired by the Port Authority in 1946.



The light weight of Kaiser Aluminum direct burial cable used at Miami International Airport terminal enabled the electrical contractor to mount two 200-foot reels on one cable rig.

Aluminum Burial Cable

Bustling Miami Airport features a lighting system as modern and efficient as can be found today at any of the world's major air fields. Over 400 aluminum standards and 550 luminaires light the grounds surrounding the terminal building. The lighting system uses nearly 23 miles of aluminum direct burial cable supplied by Kaiser Aluminum & Chemical Sales, Inc., from the company's Bristol, R. I. works. The system supplies energy for lighting traffic areas, a 6000-car parking lot, access roads, approaches, ramps and overpasses covering 80 acres.

In 1958, about 19,000 people were employed at the airport and the payroll amounts to $100,000,000 annually. The longest runway is 9,400 feet and has a width of 200 feet. The length will be extended to 10,500 feet and still remain within the present property limits; the extension is expected to be completed in October 1959. Two of the four runways are equipped with high intensity runway lights. In addition the instrument runway is equipped with the latest type of high intensity centerline approach lights. The Port Authority values the airport and its installations at $80,000,000.

The airport is big in almost every way. Ticket counters stretch five city blocks, a lineal footage of 15,000 feet. At its 74 gate positions 74 aircraft can load or unload simultaneously three times the number handled at the Washington National Airport. These gate positions emanate from six fingers stretching from the terminal building. Room is available for a seventh finger which would give the terminal a total of 84 gate positions. There are 23 escalators in continuous operation.

Flight movements average 1100 each day. A 1960 projection says this will require an average of 25,000 gallons of gasoline every hour with peaks of 100,000 gallons. One of the new jet commercial airliners gulps 23,307 gallons of fuel at a single filling.

Santa Clara men prepare the ammunition—Warfarin, barley, liquid paraffin—for the rat war. Cooking units are Dietz Co. road flares.

City-County Team Wins War on Rats

. . . develops long-lasting, effective rat bait, and safe, effective control program

By **DEAN H. ECKE** and **S. M. CRISTOFANO***

When, in 1956, citizens of the City of Santa Clara expressed concern over increased rat activity, an inspection of the city's sewer system quickly confirmed the existence of a dense rat population.

Greatest activity was noted in the "original town site," an area covering approximately three square miles.

City officials joined forces with the Santa Clara County Health Department, under direction of Dr. W. Elwyn Turner, in developing a rodent control program for the sanitary sewer system.

Sewer Rat Problems

Most authorities agree that the most effective means of rodent control is to cut off food, water and harborage from the rodent population. This type of control has been called "source reduction" and when properly employed will reduce rodent numbers even to the point of complete extermination. In such control programs, rat poisoning assumes a secondary or supplementary role.

But sewer rats present an entirely different problem, requiring control methods that only partially resemble rodent-control procedures above ground.

The average urban sewer system provides a vast network of ready-made runways and nesting places for rats. The domestic sewage of an average community provides ample food for a sizable rodent population. Left unmolested, a few rats in such a compatible environment will reproduce and in a very short period there will again be significant population.

As a sewer-rat population approaches the maximum number that the sewer environment can support, some are forced to seek food and living space elsewhere. When this happens rats readily enter homes through the plumbing or burrow under streets and sidewalks. Such activities are not merely aesthetically objectionable; they cause untold damage to sewer lines and may spread disease to occupants of the homes which they enter. Obviously, a sewer-rat population cannot be controlled by eliminating the available harborage and food supply. Thus, effective control becomes dependent upon a highly efficient poisoning program.

Program Launched

Preparatory to the Santa Clara control program, sewer maintenance personnel were instructed in basic rodent biology, recognition of rat sign, and the proper use of poisons. A detailed outline was prepared to guide the control activities.

The program consisted of three phases:

1. The entire sewer system was thoroughly inspected and all manholes which showed signs of rat infestation were marked on a city map;

2. Bait (zinc phosphate grain) was distributed at the aprons of all infested manholes and

3. After two weeks had elapsed, the manholes were again inspected, flushed and rebaited where fresh rat sign was still in evidence. All of this work was done under the close supervision of a vector control (rodent control) specialist from the county health department.

Zinc phosphide poisoning was only

* Mr. Ecke is a vector control specialist for the Santa Clara County Health Department and Mr. Cristofano is the superintendent of the Public Works Department, City of Santa Clara, Calif.

Solidified bait mass in number 10 can is mounted on a board to complete the preparation of the bait station. The bait station is wired to the manhole apron.

Decomposed rat carcasses (circles) are evidence of a successful campaign. Fresh rodent droppings in this manhole indicate the need for continued application of poison.

partially successful. A fairly good initial kill resulted but sustained control was ineffectual. Follow-up operations with zinc phosphide met with little success. The bait decomposed rapidly in the moist environment and rats developed a marked degree of bait shyness.

In the early winter of 1956, a second round of poisoning was undertaken. This time 1080 (sodium fluoracetate) treated hamburger bait was used under extremely careful supervision. The immediate results were good and many dead rats were recovered from manholes and from the sewage-purification plant. As expected, however, this bait also decomposed very rapidly and was effective for only a short time. The extremely dangerous properties of 1080 and the time consuming factors of repeated and frequent poisoning campaigns ruled out its continued use.

What obviously was needed was a safe bait which would be effective for an extended time after placement. One of the dicumarol baits seemed to be the logical choice but a formulation was demanded which could remain in the humid environment of the sewer system without becoming wet and moldy. It had also to resist erosion so that periods of heavy sewage flow would leave it comparatively unaffected.

The Solution

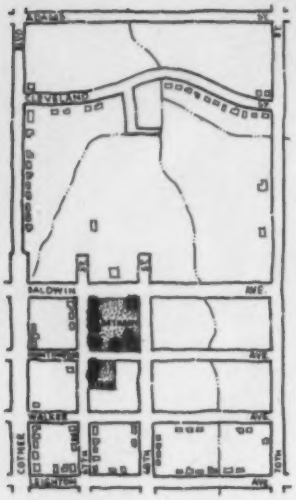
In conference with Mr. Lloyd Plesse of the Santa Clara County Agricultural Commissioner's Office, the problem was finally solved. Mr. Plesse found that by mixing liquid paraffin with a prepared grain bait, mold problems could be minimized. The prepared bait contained 19 parts whole rolled barley to 1 part 0.5% Warfarin concentrate. Experimental bait stations were tested and proved to be effective for relatively long periods of time.

The preparation of several bait stations requires a supply of prepared grain bait, some number-10 cans, several pounds of paraffin, several 8-inch-by-12-inch planks, a supply of wire, and a cooking unit. For each station, approximately 2¾ pounds of the grain bait is mixed with approximately 1½ pounds of liquid paraffin and stirred into a number-10 can. To insure a homogeneous mixture the prepared grain and paraffin are added to the can in three successive layers: each layer allowed to solidify slightly before adding the next.

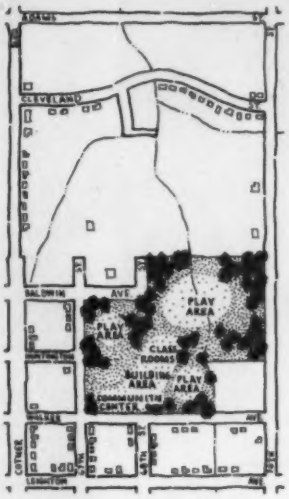
After the entire mixture is thoroughly solidified, the cab is turned on its side, nailed to a rectangular plank, and a length of wire is attached. The station is then placed on the apron in a manhole and the loose wire is fastened to the wall with a concrete nail or wound around one of the metal steps. The wire prevents the station from lodging in the sewer and also permits easy inspection of the station.

These stations were large enough to make a bait supply available for several weeks. They have been effective over sustained periods of time and have the added advantage of requiring little maintenance. Experience has shown that effective rodent control can be achieved by correlating the baiting program with the semiannual sewer flushing program. Thus, rodent control in the Santa Clara sewer system has become an intrinsic part of the overall sewer maintenance program. The reduced rodent population has resulted in fewer public complaints and fewer malfunctions attributable to rodent activity.

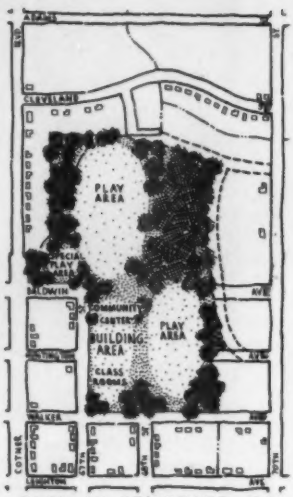
BETHANY PARK LINCOLN, NEBRASKA



EXISTING CONDITIONS



PLAN AS PROPOSED BY SCHOOL BOARD



PLAN AS PROPOSED BY PLANNING COMMISSION AND ADOPTED BY SCHOOL AND PARK BOARDS

School-Park Coordination

. . . will increase the potential of the municipality's recreational area at bargain rates to the tax fund

By **ELDRIDGE LOVELACE**, Partner
Harland Bartholomew and Associates
City Planners, St. Louis, Mo.

Many benefits and economies are effected where the schools make use of park facilities and where non-school-age groups make use of school building facilities. The most important example of school-park combinations is found where the neighborhood park and elementary schools are placed together. These both have the same general radius of service. By combining an elementary school and a neighborhood park on one land area portions of the school building may serve community needs and indoor recreation requirements; portions of the park area may serve part of the school's recreation program. The combined park and school then truly serves as a neighborhood center.

The "neighborhood" theory of residential organization and design is often misunderstood. The sociologists have caused some of the confusion, as many of them consider the word "neighborhood" to have a deep sociologic significance. The neighborhood theory actually is concerned only with physical layout of the neighborhood itself. It has been in use for many years in development of residential areas abroad, particularly in England. The first detailed analysis in this country is probably that of Clarence Arthur Perry in his book, *"Housing for the Machine Age,"* published in 1938. Basically, the objectives of this theory are:

(1) to bring some type of pattern, some type of sensible arrangement into a community's residential areas,

(2) to make it possible for children to walk from home to school without crossing a major street,

(3) to provide peace, quiet and amenity in the residential areas, and

(4) to guard the residential area against the intrusion of heavy traffic and adverse land uses.

The combined elementary school and neighborhood park is the very essence of the neighborhood theory. One would have difficulty developing a satisfactory neighborhood without having a combined school and neighborhood park as the neighborhood center.

In his book, *"Open-Space Requirements,"* Perry recommended that 10% of the total neighborhood area be devoted to parks, schools and open spaces. A one-square-mile neighborhood with a density of three families per gross acre would have a population of about 6,000 persons. Perry suggested in 1937 that such a neighborhood have 64

acres of open space. This is contrasted to recommendations of the National Recreation Association and the American Public Health Association for 11 or 12 acres.

The size of the neighborhood park or school area, of course, should be related to population. An arbitrary percentage of land area is not a satisfactory standard and a better one would be to provide a neighborhood park area of one acre for each 200 persons or about one acre for each 70 families.

Proper Ratio

A neighborhood having an area of one square mile and a population of some 6,000 would have about 600 elementary school children, and could use a neighborhood park-elementary school combination of 30 acres of park and an elementary school area of 11 acres or a total area of 41 acres. Developed at a density of two families per gross acre, there would be 4,000 people, 400 school children and a neighborhood park-elementary school area of 29 acres. With a school-park area of 30 to 40 acres a real neighborhood facility can be developed. Ample area for landscape and scenic effects may be provided; the recreation facilities need not be ugly or crowded. Through proper subdivision design it is possible to provide park and school areas of this size without sacrificing the number of lots or the other so-called "economic" land uses.

Unfortunately, few cities have provided adequate close-at-hand school and park areas. When we look at a very small city such as DeKalb, Illinois, we find that 50% of its residential area has not been served adequately by the local parks.

The situation becomes even worse when we look at a larger city such as Waco, Texas, where 83% of the residential area is without adequate close-at-hand park and recreation facilities.

In a city such as Waco it is possible to develop a park and school plan to overcome some of these inadequacies and to obtain the support of the electorate in purchasing and improving them despite the great difficulty and expense of providing new park areas within the developed residential neighborhoods.

Most of our cities are expanding very rapidly and while the old residence areas present a difficult problem there are opportunities on the outskirts to develop new residential neighborhoods which are provided with adequate local park and school areas.

Through coordinated arrangement of land use, major thoroughfares and park and school areas, neighborhoods may be created that will meet most, if not all, of the specifications previously outlined for neighborhood areas. This may be accomplished through adopting and carrying out a comprehensive city plan.

In developed portions of cities we will have to do the best we can with what we have and even the comprehensive plan itself may not come too close to meeting the desirable objectives. In most of our cities, however, to overcome the problem of inadequate local park and school areas in presently developed residential neighborhoods we will have to content ourselves with extremely small areas except in a few unusual instances where, through urban renewal or the changes in use of an institutional property, we are able to obtain a neighborhood park - elementary school combination with an adequate area.

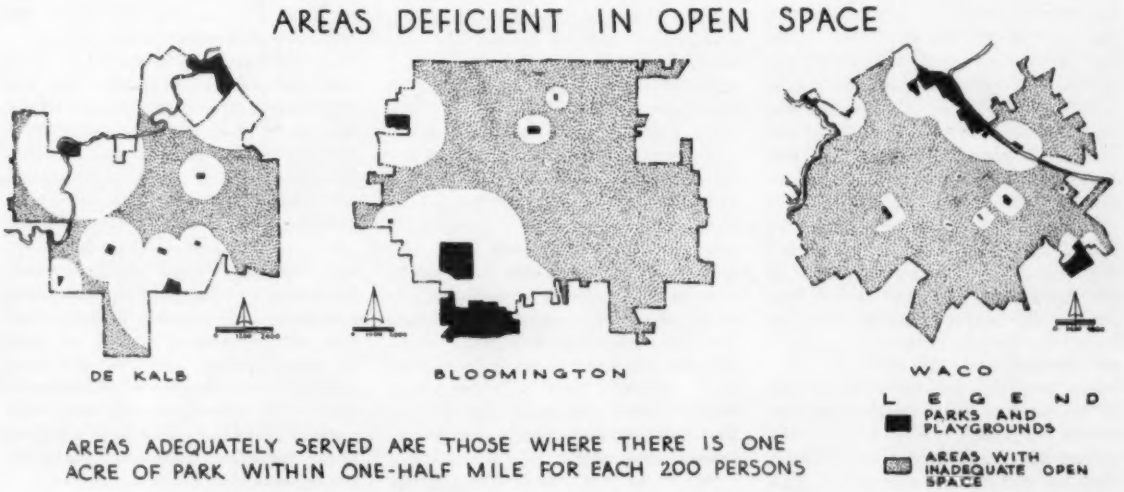
Benefits

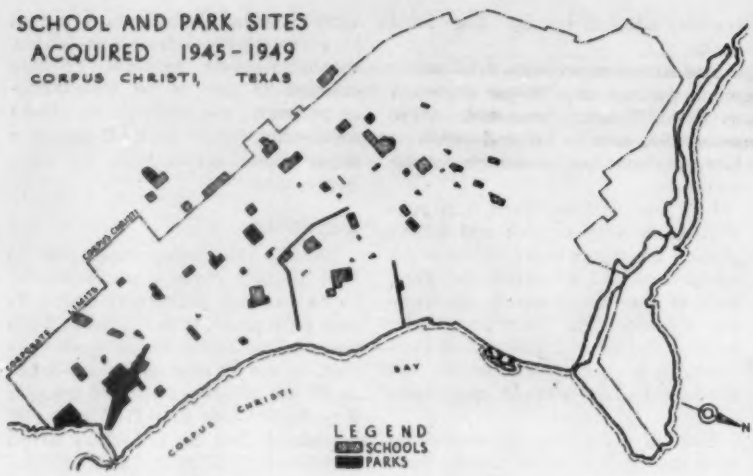
During the period from 1945 to 1957 Dallas, Texas made additions to 14 existing parks and added 53 new park areas, with a total of 2,650 acres being added to the park system. Of the 53 new parks one-third, or 17, are adjacent to public schools; 8 contained less than five acres; 26 contained five to 15 acres; seven contained 15 to 25 acres; four contained 25 to 50 acres and eight had more than 50 acres.

Corpus Christi also has a park-school plan and has been expanding its park and school systems. Since 1945, Corpus Christi has added 31 new park areas, 10 of which have been adjacent to schools — about the same proportion as Dallas. Of the 419 acres added, somewhat more than half—241 acres of park—has been purchased while 178 acres have been dedicated to this purpose through subdivision control.

The experiences of Dallas and Corpus Christi indicate that it is difficult for a very rapidly growing municipality to keep pace with its needs for park area. There is an obvious tendency for provision of relatively small neighborhood parks and an apparent difficulty in provision of fully coordinated park-school developments.

The following two examples of combined municipal and school


AREAS DEFICIENT IN OPEN SPACE
DE KALB
BLOOMINGTON
WACO
L E G E N D
PARKS AND PLAYGROUNDS
AREAS WITH INADEQUATE OPEN SPACE
AREAS ADEQUATELY SERVED ARE THOSE WHERE THERE IS ONE ACRE OF PARK WITHIN ONE-HALF MILE FOR EACH 200 PERSONS



developments are from the experience of Lincoln, Nebraska. They are fairly typical, however, and similar case histories could be found in almost all of the larger cities of the country.

The first example is rather unusual. Closely adjoining the central business district of Lincoln is the Lincoln Senior High School. Originally located on a small site, the school district enlarged the facility by purchase of property across the street south of the original school. However, this was a major street. To the east of the school is located Antelope Creek along which the city owned certain park property. The city's master plan proposed a new major thoroughfare leading from the business district to the southeast along Antelope Creek.

The high school badly needed a new field house and there was one logical site, immediately adjacent to the present building and occupying the path of the major street. Here was a problem that obviously required coordinated action. The school board could not add to the high school without the city's cooperation and the city could not build the major thoroughfare without the school board's cooperation.

The city planning commission was called upon to develop a preliminary plan combining certain of the park and school areas, rerouting the major street so that the high school could have a consolidated campus and providing for the major thoroughfare in such a way as to do the least damage to the school facilities. Negotiations required several months but culminated in a written agreement and the entire plan has now been carried out.

A second example is in one of the residential sections of Lincoln where the city plat proposed establishment of a neighborhood park through expansion of a very small existing park. When a preliminary subdivision plan was submitted for a part of the proposed park area the city planning commission notified the park board, only to find that it was not possible to interest the park board in purchasing the property in advance of the time that the subdivision would take place.

Shortly thereafter the school board proposed that the very small park area in that same general location be purchased and used for an elementary school site. At this point it was possible for the planning agency to bring both the park and school boards into agreement on the need for a park-school development in this neighborhood. Again a satisfactory written agreement was made and a combined park-school facility is now being developed in this location.

In Lincoln there is no specific organization or mechanism that insures complete coordination of park and school development. The school district is completely independent and completely separate from the municipality and is not required to coordinate its efforts with the municipal efforts. In other cities, however, the situation is further complicated by having an independent park district that is completely separate from the school district and the municipality which serve the same community.

In spite of the remarkable achievements of a few cities, the general impression of the status of local park development in the nation is a negative and a pessimistic one. Very few cities have ambitious programs of acquisition and improvement of their park systems that are backed up by adequate financing.

While certain cities are acquiring local park areas in connection with school grounds, many of the areas that are being acquired are quite small.

Cooperation Needed

There is no question but that the division of effort between park boards, school boards, and city departments is a major impediment in the provision of a sufficient number of park-school areas. Consistent cooperation is essential and that is difficult to accomplish with changing personnel, rivalries, feuds, and petty jealousies that seem to be so characteristic of local affairs of this type.

The city's planning agency should exert the needed leadership to secure this cooperation and bring about the dynamic support that is required.

It should be a major objective of the planning department to bring school and park officials together, to make coordinated long-range plans agreeable to both agencies for the park-school areas, and then to secure the coordinated development of residential neighborhoods that will focus upon the park-school areas.

Hit-or-miss cooperation is not adequate. A formal and permanent committee set-up by joint official action of park and school agencies is essential. The committee should have representation from the planning department to insure that facilities are coordinated with the city plan and other municipal activities. All park and school expansion and development should be the responsibility of this committee and should be channeled through it.

Many cities have benefited from combinations of park and school facilities, from joint use of school buildings, and from school use of park areas. On the whole, however, the surface has hardly been scratched in regard to the taxpayer receiving full benefits of this concept. For example, only a handful of communities have carried this concept on to the stage where there is unified operation and maintenance of all of the municipality's open areas whether they are parks or school grounds.

Wide rights of way and shade tree plantings in four separate lines allow broad, park-like avenues until . . .

. . . traffic demands more room and, with inner lines of trees removed, multi-laned boulevards with median strips provide all the answers.

Out of the Dim Past— A Lesson for Tomorrow

Columbus, Ga., occupies an advantageous—and almost solitary—position as an old city that has never operated without a master plan. The result provides both a documentary and a physical lesson for planners and street officials faced with present-day problems of downtown traffic. Principles of the earliest development program were followed to the letter and their implementation has never stopped paying dividends.

Columbus had its birth in 1828, with 1,200 acres that hugged a bend in the Chattahoochee River, which forms the boundary between Georgia and Alabama. Under its original master plan, prepared by the State of Georgia, these 1,200 acres were laid out, allocated for specific uses and sold in conformity with terms of the plan.

Since that time, the city has grown and developed from and by the use of a procession of comprehensive plans, increasing its area from the original 2 square miles to its present 26.4 square miles. And its most beautiful and functional portion is that same 1,200 acres—now the downtown business section.

In what was undoubtedly attacked at the time by some as an extravagant land waste, original planners laid out Broadway, the original north-south business avenue, with a 164-foot width. All other avenues parallel to this one were staked out with 132-foot rights-of-way. The east-west streets are all 99 feet wide, completing a street pattern on a grid layout that is the exception to the rule. Columbus has a "boulevard business district."

Planting Pattern

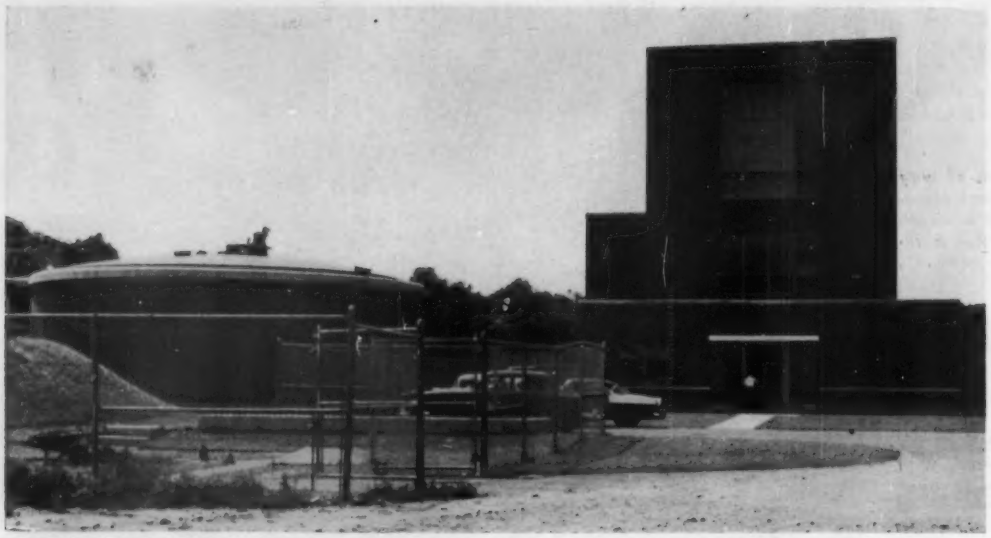
But the planning went beyond mere allocation of right-of-way widths. On most of the major avenues, planting followed the same far-seeing channels. These avenues are flanked on either side by a wide expanse of city-owned property which is lawned and lined with two rows of shade trees. One row is set back eight feet from the curb and the other is about the same distance in front of citizens' property lines. The sidewalk runs between this latter row and the private property lines.

This planting pattern has made it possible for pavement widening programs to be executed with removal of the inner rows of trees without losing the beauty of the old shade trees that form the two outside lines. With the inner rows removed, approximately 100 feet of right-of-way becomes available for any width of pavement and any combination of traffic pattern design.

Residential streets in this downtown area have been maintained with the four lines of shade-tree planting as originally laid out, but the commercially zoned properties have been given the advantage of broad multiple-laned streets, with enough land left over for a planted median strip in most cases. Flexibility of roadway widths and variations in traffic patterns provide almost unlimited design freedom as changes are required.

Passenger automobile registrations in the county have increased 2½ times since 1948. Traffic has already exceeded 1970 predictions and the population within city limits today is more than seven times that of 1900.

But thanks to the unusual, almost unbelievable vision of the original planners 130 years ago, the City of Columbus is still free of the strangulation that is a part of so many cities of similar size—and age.

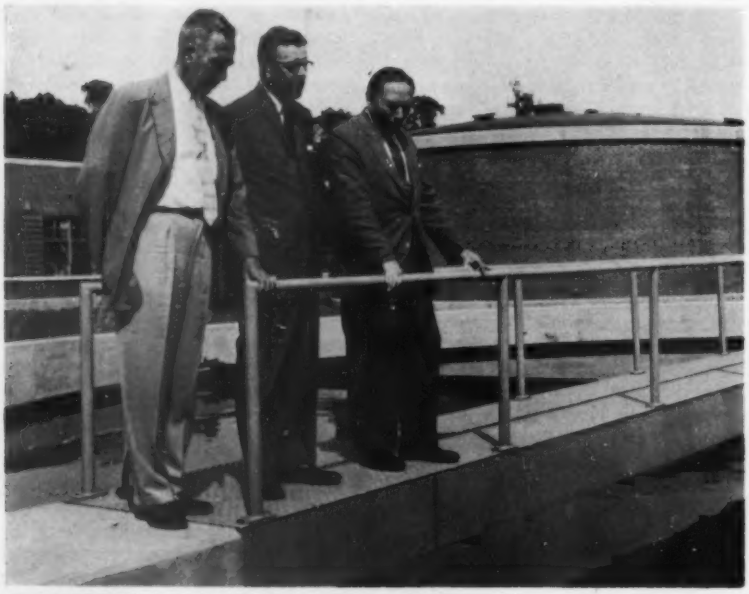


Plans for this new plant call for an incinerator at the rear of the main building.

Modern Sewage Treatment for an Old City

Norwich, Conn. dedicates a new sewage treatment plant on its 300th birthday

By **JAY M. ETLINGER**
City Manager, Norwich, Conn.



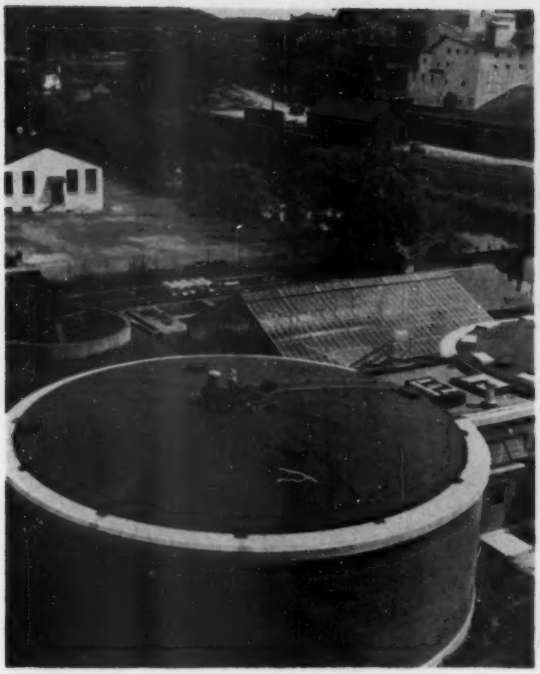
Council President Hartwell G. Zuerner (center) looks over the plant with the author (right) and Director of Public Works Harold M. Walz.

This year the City of Norwich celebrated its 300th birthday. Many old buildings of historical interest attracted visitors during the tercentenary week celebration but new and modern installations also played an important role in the week's festivities and helped in the daily task of running a municipality. One of these is the recently completed sewage treatment plant.

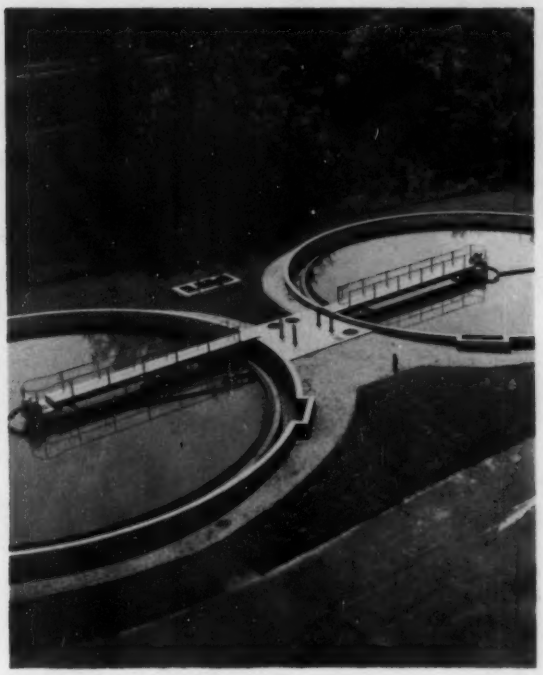
The plant as constructed represents only part of a six-phase program designed to collect and treat approximately 85% of all sewage within the original city district. Several areas within the total city area, but in another taxing district, will have to be treated in a special manner.

Providing sewerage facilities for the city involved considerable legal negotiations. These were described by the writer in an article published in the June 1958 issue of *Public Management*. This article deals with the plant itself as constructed plus plans for future development.

The city did operate a primary-



The old plant (beyond the digesters) still serves to treat 0.4 mgd of sewage; however, the glass-covered sludge drying bed is no longer used.



The two circular settling tanks provide a 2½-hour detention period at design capacity of 4½ mgd.

treatment plant, constructed in 1938, that received sewage via an interceptor sewer along a portion of the Yantic River which eliminated six points of discharge of raw sewage into the river. This plant had a design capacity of only 0.4 mgd and was not suitable for enlargement. However, it was incorporated in the new plans so that in reality we now have two plants in one.

The old plant consists of a manually cleaned bar screen and grit chamber; two settling tanks having a common center wall and overall dimensions of 36 feet in length, 23 feet in width and 8 feet in average depth; a 27-foot-diameter digester and a glass-covered sludge drying bed. All equipment is new with the exception of the settling-tank collection machinery. The old digester will not presently be used since the new plant has adequate capacity to process all sewage now needing treatment. Design capacity of the total system definitely incorporates use of the old digester to take care of the excess sludge. It will be completely cleaned to be ready for the future maximum-use operation. Flow to and through the old plant is by gravity.

Sewage reaches the new portion of the treatment facilities via a force main and flows through the plant by gravity. Grit removal takes place in a 16-foot-diameter, 4-foot-deep Dorrco Detritor with a mechanical grit rake. The sewage then flows through two Model 25-A Chicago Pump comminutors into two Dorr Clarifiers. These circular units are each 60 feet in diameter and provide a 2½-hour detention period at the plant's design capacity of 4½ mgd. The effluent passes through a Parshall flume and then is discharged into the Thames River about half a mile from the plant. A Builders-Providence Inc. indicating, totalizing and recording instrument measures the plant effluent.

Two 85-gpm Carter Simplex sludge pumps located in the old building pump sludge from both the old and new settling tanks to the digesters. The new digesters include one primary unit 50 feet in diameter with a 24-foot side-wall depth and one secondary unit 40 feet in diameter and 24 feet deep. Only the secondary unit has a floating cover.

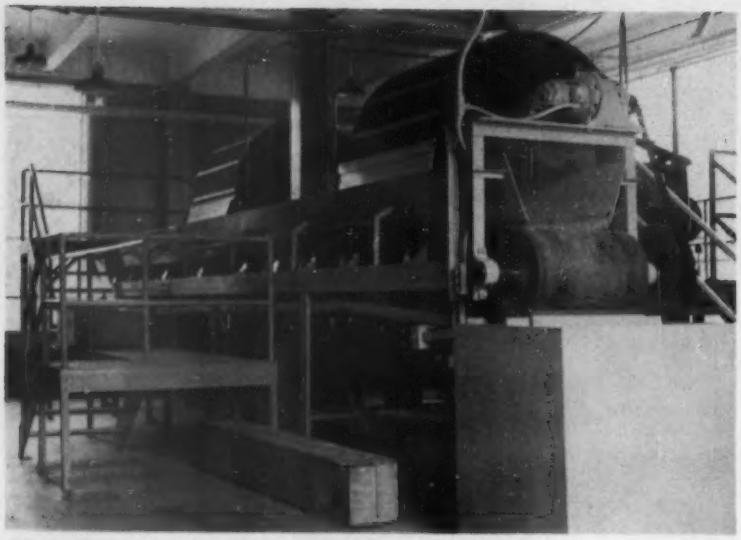
The primary digester only is heated by means of a Dorr-Oliver spiral heat exchanger with heat supplied by a gas-fired Bryant boiler able to deliver 1,176,000 BTU per hour using either natural gas or sewage-sludge gas.

The digested sludge passes through an elutriation tank that washes it and makes it easier to filter. It then travels to either of two Eimco continuous vacuum filters, each 5½ feet in diameter by 5 feet wide with 82 square feet of filter area. A conveyor belt carries the dehydrated sludge to a truck-loading chute at the rear of the building. With this system available, the old drying bed will be on hand but will be used only in case of emergency.

All sewage is chlorinated as it enters the plant. Equipment consists of three Builders-Providence Chlorinizers, two rated at 800-pounds-per-day capacity and one at 80 pounds per day, and two Chicago Pump Co. injectors. Chlorine is purchased in ton containers and the plant has two Toledo scales with two-pound graduations so that two containers can be hooked up at one time.

Planned for Expansion

The main building comprises three floors with ample room for additional equipment to be installed as needed. The first or ground floor contains the office, a well-equipped laboratory, locker and shower room, and the machinery room. This latter room houses the digester and building heating boiler, and sludge



All sludge will be dehydrated by these two vacuum filters; plans call for the addition of flash-drying equipment.

and vacuum pumps used in connection with the filters.

The second floor houses the vacuum filters and filtrate tank and the main switch panel. The Westinghouse switch panel occupies an alcove on one side of the room and is sufficiently large to include controls for a proposed incinerator that will be attached to the rear of the building. This incinerator will consume the city's refuse as well as sewage sludge. The second floor also contains a small repair shop.

The third floor, vacant at present, is reserved for future installation of flash sludge-drying equipment. It also contains a storage room equipped with a 1,000-pound-capacity David Round hoist on an overhead monorail system.

The design of the building is such that the incinerator can be added without destroying the pleasant appearance of the structure The plant is located on an island with ample room available for the addition of secondary treatment if necessary.

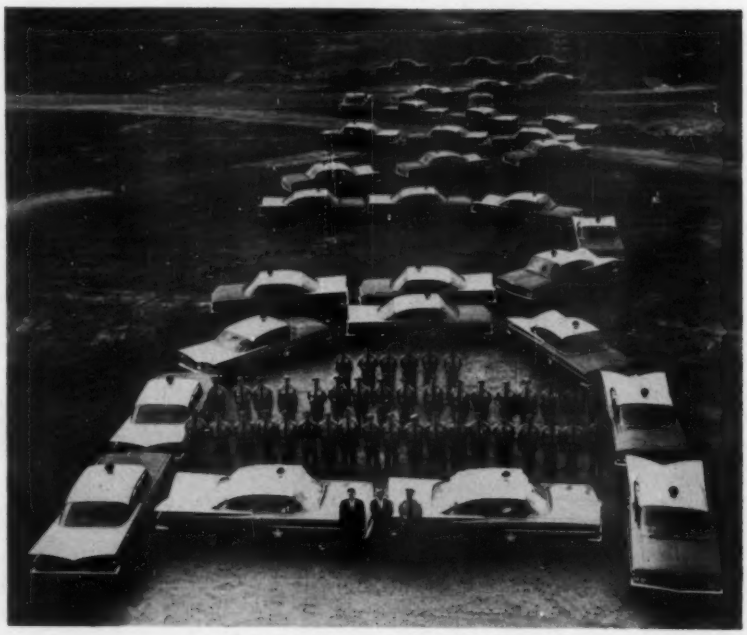
The facility as built includes construction of interceptor sewers and two lift stations. Station No. 1 has two pumps of 2500-gpm capacity each and Station No. 2 has two pumps of 300-gpm capacity each. All are Chicago Pump units. The larger of the two stations has provisions for a third pump. The facility now serves about 14,000 people.

To date approximately $1,750,000 has been spent on the facility. Of this about $330,000 covers construction of intercepting sewers, force mains and pumping stations and about $1,280,000 went into plant construction and equipment. The balance covers engineering and legal fees and other related costs. The city financed the program through a 2.5%, $1,600,000 general obligation bond issue plus a grant that will total $250,000 from the federal government under Public Law 660. The Norwich program was the first in Connecticut to receive the maximum grant allowed under the federal pollution act.

The plant is under the direct supervision of Harold M. Walz, Director of Public Works. Arthur LeBlanc serves as Chief Operator. Two engineering firms, Keis & Holroyd of Troy, N. Y., and Chandler & Palmer of Norwich, Conn., designed the facility and supervised construction. The plant was accepted on March 25, 1959.

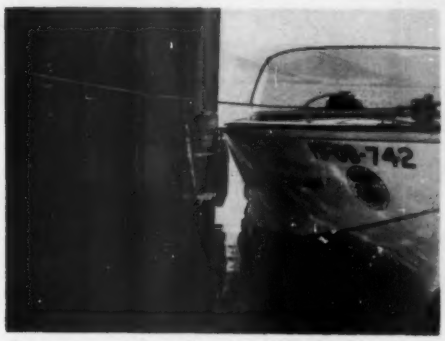
County Police Leases Fleet

The police car leased fleet shown here consists of 36 units just put into operation by the Duval County Police Department of Jacksonville, Fla. Sheriff Dale Carson and his men put the new vehicles through their first paces here, spelling out the name of the county after taking delivery from Gordon Thompson Chevrolet, Inc., of Jacksonville. Scheduled for continuous runs during three shifts a day, the 1959 Chevrolets are equipped with 280-horsepower V8s with triple two-barrel carburetors and three-speed transmissions.



Raw polystyrene foam logs look like this before assembly.

Workmen fit them into frames for boat slips or floats.



Some support boat houses sheltering small craft.

Others support high-floating platforms for swimmers.

It Floats

Los Angeles County finds an inexpensive solution to an annoying beach maintenance problem

By **HAROLD MESERVE,** Superintendent of Parks
County of Los Angeles, Los Angeles, Calif.

In Los Angeles County we have many miles of public beaches with thousands of installations such as boat houses, floats, docks, piers and bath houses both in and out of the water—salt, of course.

In this narrow field alone, we have been fighting a maintenance battle for years. The care of the flotation gear has given us the most trouble but we believe we now have a solution.

In the San Jose Hills between Covina and Pomona in eastern Los Angeles County is the San Dimas Puddingstone Dam. Its primary function is water conservation and flood control.

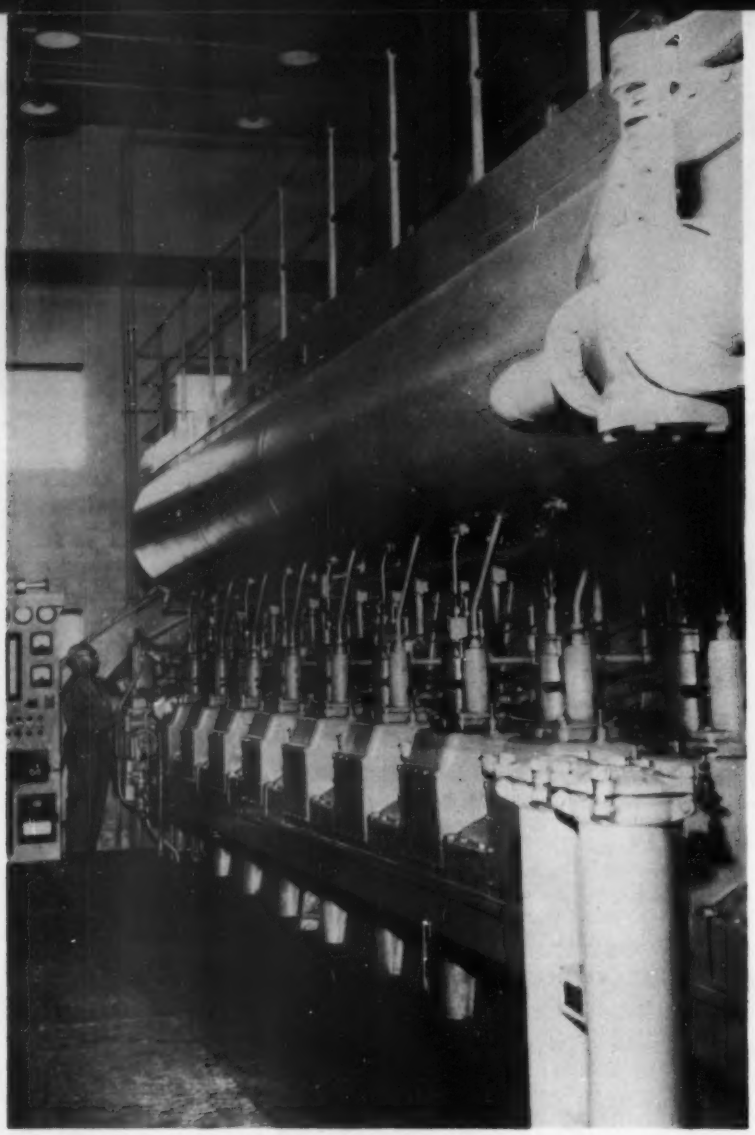
But Californians by the thousands have added to that primary function each year. They find this delightful man-made lake a splendid spot for swimming, fishing, boating and the like. This dam is characteristic of many in the county. It has been equipped with floats for swimming and boating, and other related equipment consistent with high standards of safety.

For years most of this gear was kept afloat on oil drums. The nagging problems of erosion, rust and exposure generally were with us on a round-the-clock basis.

William A. Rinner, our chief maintenance man in the area, estimated that his budget would be tapped for about $600 every two years just for labor to replace oil drums on one moderate size swimming float. This was exclusive of his floating boat house and other installations. In addition he had to anticipate other maintenance expenses resulting from actions of exuberant youths and from the wind and the weather.

In May 1958, we decided to experiment with a relatively new product. We picked a polystyrene foam plastic which had been expanded more than 40 times and shaped in the form of logs. These logs, we learned, can be sawed or formed to fit any requirement we might have. The manufacturer, Dow Chemical Corp., guaranteed certain properties in this white foam plastic, all of them vital to us. It cannot be waterlogged, will support 55 pounds per cubic foot, floats 96% above water-level, is unsinkable even if punctured and will not turn into a habitat for animal life. We installed the logs on Bill's 5-ton lumber float. The cost was low, just under $13 per log for 20 units.

The obvious success of the material in our installations has prompted us to explore new areas for its use. Keeping in mind, as we must do, that maintenance of such installations has been reduced to near zero and that even the initial cost of construction is low, we have high hopes that our problems in dealing with salt and fresh water damage have become greatly simplified.



Utilities Manager Vern Livingston checks the governor of the new Nordberg 4,350-hp Duafuel diesel engine, "work horse" of the Nebraska City plant.

Diesel Work Horse Helps Cut Power Costs

Dual-fuel, two-cycle power plant drives 3,525-kw generator, sidelines steam generating plant, reduces purchased power to trickle

By **KEITH N. NEWHOUSE**, Associate Professor of Mechanical Engineering, University of Nebraska Lincoln, Neb.

A new 4,350-horsepower Nordberg Duafuel engine, placed in service at the Nebraska City, Neb., municipal diesel plant in 1958, has piled up an enviable record of reliability and service, and earned itself the title of "work-horse" by remaining on the line 86.5% of the time and producing 59.6% of the plant's total power in its first six months of operation.

When, in 1945, the city purchased an electric system that served both the municipality and surrounding communities, power sources consisted of a 2,500-kw, 165-pound steam generating plant and a 2,000,-kw tie-in with a public power district. Early engineering studies clearly indicated the desirability of diesel generating units as a more economical power source because of their operating flexibility as well as high efficiency in the sizes needed.

Development Program

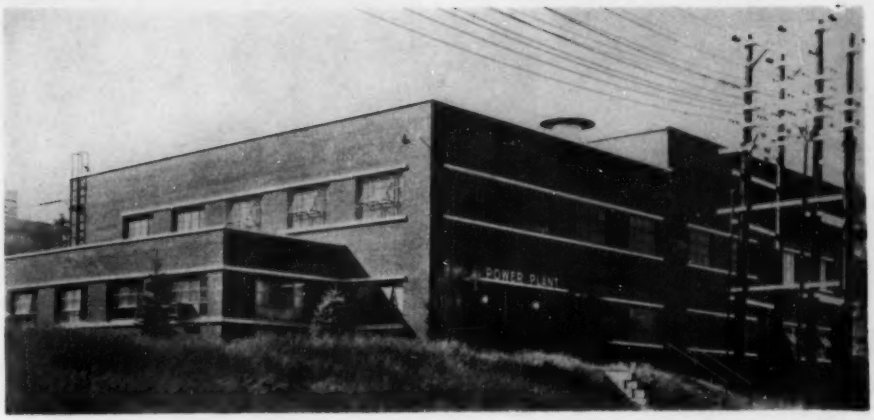
The first prime movers during implementation of the development program were two Nordberg Supairthermal Duafuel diesels. These four-cyle, 327-rpm, 2,120-hp units were placed in service in 1952 and 1953. Each drives a 1,500-kw generator. These were followed in 1955 by a 3,500-hp dual-fuel engine with a 2,500-kw generator.

Continued rapid load expansion, together with a policy of reducing dependence on relatively expensive steam and purchased power, led to installation of the city's newest and largest diesel, the model TSGL-219 Nordberg Duafuel two-cycle engine. The nine-cylinder, (21½-inch bore, 31-inch stroke), 240-rpm power unit develops 4,350 horsepower driving a 3,525-kw General Electric generator.

Shoulders the Load

When assigned to full-time service in July 1958, the big engine really shouldered the load. In its first six months, the new unit was on the line 3,721.4 hours and generated 8,134,900 kw-hrs of the plant's 13,-670,700 kw-hrs of production, 59.6% of the total.

The steam plant was relegated to standby status and purchased power had been reduced to a trickle. Costs of steam generation during the past ten years were never under 7.11 mills per kw-hour and have constantly risen. Cost of purchased power in the same decade was never under 8.53 mills, and in recent years has risen to 15 mills. The gas-burning diesels on the other hand, cut total generating



Power plant sections at left house four generating units. Northern section (right) houses new unit, with further northward expansion possible.

costs to the level of 4.89 mills per kw-hr for the first eleven months of 1958.

The new engine consumed just 50,935 gallons of pilot oil and 83,921 MCF of natural gas to produce its 8,134,900 kw-hours, an average of 0.00626 gallons of oil and 10.31 cubic feet of gas per kw-hour. These figures include two days of full operation on oil, so pilot fuel consumption normally would be somewhat lower.

Pilot fuel oil has averaged about 6% of that used for full fuel-oil operation during the initial break-in period. The percentage is expected to drop somewhat as operating hours increase. Lube oil consumption is averaging 6,313 hp-hours per gallon, and about 30,000 hours of operating time are anticipated between major overhauls on the engine. The heat rate maintains a consistently low level, below 10,200 BTU per kw-hour.

The engine is operated on either diesel fuel or natural gas—or on any combination of them. A minimum fuel oil operation is desired, because local fuel costs definitely favor the use of natural gas. Only the small amount of oil necessary to trigger the gas ignition is used except during starting and stopping operations.

Operation

Natural gas is supplied to the engine at 20-psi pressure, after passing through a scrubber, a meter and a pressure-reducing station that converts the 100-psi line pressure to engine feed pressure. In the event of gas failure, the engine automatically shifts to fuel oil operation, with #2 fuel oil supplied from 300-gallon day tanks located in the basement of the station, along with fuel-oil filters and transfer pumps. Main storage is underground and has a capacity of 68,000 gallons of fuel oil that may be delivered by either rail or truck to the tanks.

Combustion and scavenging air is purified by an American Air Filter and introduced by a 350-hp Roots-Connersville centrifugal blower. The air is discharged to the engine at about one-psi pressure. A Ross heat exchanger, using tower water, is placed between the blower and the engine, tempering the air by lowering the temperature in the summer and raising it in the winter.

Engine Cooling

Although the Missouri River flows by only a few hundred feet away from the station, operating difficulties stemming from sand bars, contamination and variable temperatures made it undesirable as a cooling source. Instead, engine cooling is accomplished by induced-draft towers. Chemically treated engine-jacket water is circulated in a closed loop and is cooled in a heat exchanger by the cooling tower. Both tower and jacket-water make-up is treated by Dearborn sodium-zeolite softener.

Lube oil is cooled from 140° to 120° F. by rejecting heat to the tower water. From the cooler, the Texaco HD-40 detergent-type lubricating oil is pumped through Honan-Crane lube-oil filters, and the same detergent oil is used in cylinder lubricators which inject the oil to each cylinder at six different points.

Electric power at 4,160 volts is delivered through unitized metal-clad switchgear to the 13.2-kv distribution substation. Plant auxiliary power is at 220/440 volts with the scavenging air blower motor supplied at the full 4,160 volts.

All maintenance work is done by the nine plant employees. Injection nozzles are cleaned and checked periodically. Compression checks are made frequently. Major overhauls are made in cooperation with a representative of the manufacturer.

Growth Cited

Like most utilities, Nebraska City's electric system has experienced impressive growth. Peak load in 1940 was 1,955 kw, and in 1952 it had grown to 4,550 kw. By 1958, it had zoomed to 7,200 kw. This last figure represents the summer peak, built by air conditioning, sprinkling and the refrigeration load. It would have been higher, still, had not abundant rainfall reduced normal irrigation pumping demands. The previous winter peak was 5,400 kw, and Vern Livingston, manager of the Nebraska City Utilities, is seeking to fill this low-supply period by promoting electric space heating and heat pumps. The city's progressive management anticipates that the load will again double during the next ten-year period.

Expansion Foreseen

The north wall of the station is built of removable steel panels and in planning the latest engine installation, consulting engineers, Stanley Engineering Company of Muscatine, Iowa, allowed ample room for expansion. The next chapter in Nebraska City's power story will probably feature an even bigger dual-fuel diesel engine.

Six inches of concrete will be poured to the grades already established by the drainage, gutter and curb work. The centerline forms are standard 6" Blaw-Knox steel forms and catch basin castings were furnished by Carbo Foundry & Machine Co. of Alexandria.

The Little Things Add Up...

Specifications, standard procedures and details, developed during a continuous paving program, narrow bid range—save dollars in Alexandria, La.

By **CHARLES W. COOK**
City Engineer
Alexandria, La.

Paving in "bite-size" contracts, almost universally recognized as a costly way to build a road network, has resulted in more than 30 miles of portland cement concrete streets in Alexandria, La., during the past ten years. But, what started out to be an unfortunate necessity of letting expensive piece-meal segments of paving, almost on a block-by-block basis at a rate of 1.88 to 5.44 miles per fiscal year, has developed into a method of street improvement with more advantages than drawbacks.

Many streets paved during the past few years are only one or two blocks long, and improvements have been undertaken after sharp competitive bidding by smaller contractors providing a cost advantage with a minimum outlay of equipment. Also, since the city does not keep funds available for partial payments, the contractor does not have too much capital tied up for a long period. This is, of course, a departure from usual thinking; however, paving costs, compared with those of other cities in the state, show that larger jobs do not necessarily mean lower costs.

Paving with Savings

Besides the advantage of keen competition among predominantly local contractors, Alexandria has made use of several other cost-saving devices. Sharing prime importance are the city's "General Specifications for Street Paving" and its full set of standard detail drawings that accompany all plans available for bidders.

The specifications are comprehensive—97 pages of general requirements and covenants, construction details and contract documentary forms—so written that the possibility of misunderstanding or intentional short-cutting "within the letter of the law" has been all but eliminated.

An essential portion of every paving contract—even the short block projects—is the file of standard de-

Only a year ago Texas Avenue had just one advantage—a rural look. But its muddy, hard-to-maintain surface was not geared to modern living.

Today, the same street is not only beautiful and up to date, it has attracted new construction (see new buildings at right).

. . . to Better Paving

tail drawings. There are nine of these, covering all structural phases of each job, among them: cross-sections of pavements, catchbasins, valley drains, manholes (frame and cover as well as construction), culverts and commercial and residential driveway standards.

But Alexandria didn't stop with details of structures. Its engineers designed and detailed a complete set of working drawings for barricades, signs and warning flag stands as a minimum standard to safeguard the public during construction operations.

Then, so that there could be no question of crown requirements, dimensions or finishes, the engineer's office designed and detailed the finishing tools for concrete pavement according to the construction standards set forth in the plans and specifications. These consist of a strike-off board, subgrade check board, header board, bow-belt float, transverse wood float, long-handled float and hand float, as well as straight edges, recommended work bridge and float brush. This sheet also accompanies bid-estimating materials that are offered to prospective contractors.

Storm Drainage

Alexandria is situated on the flat alluvial plain of the Red and Mississippi rivers, which confronts the city with its greatest problem—installation of sanitary and storm sewers. With an annual rainfall of about 60 inches (it has been deluged by as much as seven inches in a single four-hour period) the city has a few natural drainage canals within its boundaries but they are inadequate. For many years the need for improving and covering them and expanding sub-surface drainage has been of prime urgency. Several bond issues have been passed, the most recent one in 1955. Work covered under the last one is just being completed.

Special problems in the street paving program have centered around holding sub-surface drainage costs down to a point where paving assessments are equitable. Discovery of utilities that conflicted with sub-surface lines has placed physical problems in the path of the paving programs.

The standard curb cross-section is the low drive-over or parkway type curb wherever possible, especially in residential areas. Not only does this type look better, but it increases usable width of street by permitting closer parking. This cross-section, however, requires that surface water be carried underground at fairly short intervals, thus increasing drainage costs. Double catch basins are often used to obtain sufficient entrance area at lower cost.

The close tolerances demanded in flat drainage and street grades have been maintained through scheduling pipe installation and casting operations. Contractors are required to place all drainage structures first. Next, curbs and gutters

are cast, and finally the pavement placed. It has been found that closer check can be made on gutter grades to prevent low places and pooling in the finished street.

A slab of 6-inch thickness is standard, with reinforcing required on streets carrying heavy traffic. Portland cement concrete with a compressive strength of 3,000 psi is specified, and reinforcing bars are placed between gutter and slab and at longitudinal center joints. Transverse reinforcing joints are placed at 30-foot intervals, with dummy joints at the 15-foot points. Non-extruding expansion joint material is specified.

Who Pays?

Costs of paving in Louisiana are generally handled under one of two statutes. The one most frequently used provides city governing authorities with the right to order street improvements without petition of benefitted property owners. Under this statute, the municipality pays a part of the cost based upon the proportion of the net area of street intersections to the total area of street paved. Usually, however, the paving is done on written petition by property owners of more than 50% of the lineal frontage abutting on the streets, in which case all costs are assessed to the property owners. Such a statute has provided the financing of between 80% and 90% of all paving work done by Alexandria during the past ten years, but there have been times when 50% of the owners of abutting properties could not—or would not—add their names to the petition. In these cases, city officials have resorted to the second state law that allows improvement of streets in the public interest without petition by owners, but after a prescribed issuance of notice of intention and public hearing. Under this statute, streets may be paved in spite of objections and many cities in Louisiana are using the method.

All Alexandria streets are paved in accordance with their importance and the right-of-way widths. Primary streets carry a 36-foot pavement on a 60-foot right-of-way. However, some of the rights-of-way are 80 to 100 feet in width, and 40- and 50-foot pavements are standard for these. Where the right-of-way is only 50 feet, a 30-foot paved width is specified. Only on rare occasions, in small dead-end improvements, are paving widths less than those accepted as standard.

The improvement program is being carried on under supervision of Park and Streets Commissioner William H. (Bill) Lambdin. In the city's 10.1 square miles of area, a third of its 100 miles of paved roads have been improved during the past ten years. The continuing program is slated to pave 40-odd miles well within the next decade.

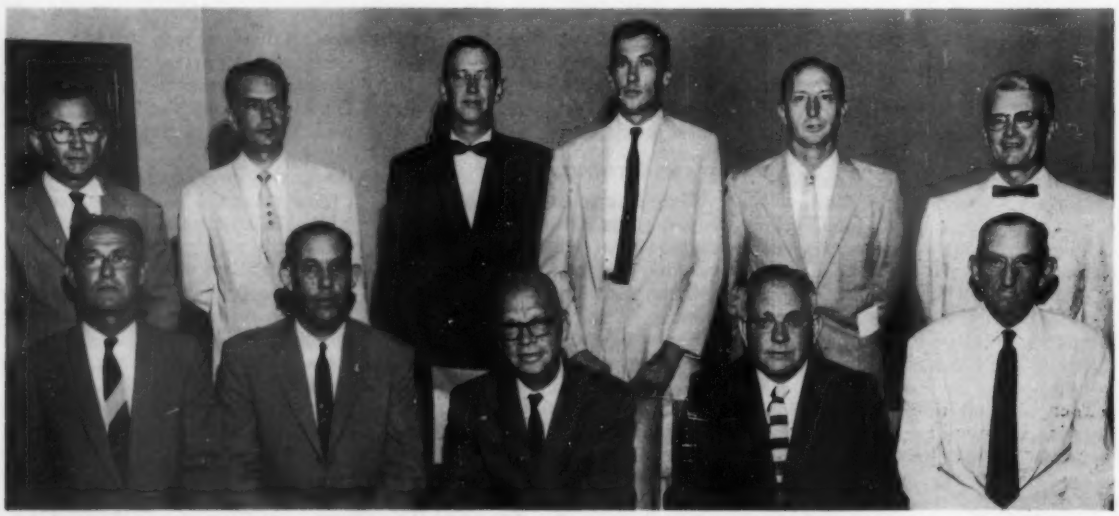
Florida's Outstanding Water and Sewage Plants

Each year, at the Annual Water and Sewage Treatment Plant Operators' Short School held at the University of Florida, Gainesville, awards are presented for outstanding water and sewage treatment plant operations. This year's awards, presented at the 27th annual short course by David B. Lee, director of the Bureau of Sanitary Engineering, Florida State Board of Health, went to the following:

Atlantic Beach Water Plant; Winter Park Water Plant; Pinellas County Water System Plant; Naples Water Plant; North Miami Beach Water Plant; City of Miami—dual awards to the Alexander Orr, Jr. Water Plant and the Hialeah Water Plant; U. S. Sugar Corporation; and the Tampa Water Plant.

Sewage treatment plant awards went to:

Tampa; Lake Wales; Bradenton; Clearwater; Coral Gables; Miami International Airport No. 2; and St. Petersburg.



Representatives of ten of the award-winning water and sewage treatment plants were on hand to receive the citations. Seated (l. to r.): J. M. Logan, Pinellas County Water System; C. M. Courson, City of Tampa Sewage Department; David B. Lee, director of the Bureau of Sanitary Engineering, Florida State Board of Health, who presented the awards; Sam P. Robinson, Lake Wales Sewage Department; and W. C. Tims, Coral Gables Sewage Department. Standing (l. to r.): Paul Samuels, Hialeah (Miami) Water Plant; J. T. Hoffman, Naples Water Department; Perry A. Cessna, City of Clearwater Sewage Department; Thomas E. Wagoner, Al Whitted (St. Petersburg) Sewage Plant; and J. N. Hagerich, Alexander Orr, Jr. (Miami) Water Plant.

Though the building receives the full force of the summer sun, the sunscreen eliminates glare from every window.

Nevertheless ample amounts of glare-free light still enter the offices.

No Air Conditioning Needed

Madison, Wis. City-County Building employs natural air circulation and sun-shielding screens for cooling; saves $8,000 per year on air conditioning

By **A. C. WOERPEL,** Dane County Purchasing Agent
Madison, Wis.

The new City and County Building, built to serve the needs of both the City of Madison and Dane County, is using a practical, money-saving method to control temperatures in the building.

From the drawing board to completion of the structure, we have been guided by one fundamental principle. We wanted to take full advantage of the fine site by erecting a beautiful, permanent building that would incorporate maximum convenience and comfort for the public and employees as well. The City and County Building, constructed of stone, marble and glass, at a cost of over $7 million, houses municipal and county offices, courts, a police headquarters, and, uniquely, a jail on the top story.

The building is cooled by a fresh-air distribution system. During the evening, cool air is drawn from the outside and piped throughout interior spaces. By using a sunscreen on all exposed windows, this system is sufficient to keep the building comfortable on the hottest days.

The decision to use fresh air cooling and sunscreens was made after an extensive testing period. We selected two adjacent offices having identical dimensions and having windows of the same size facing the same way for our test.

One of the offices had its window area fitted with KoolShade Sunscreen; the window area in the other office was unprotected. Temperature readings were taken in both offices on several hot summer days. Readings were made by members of the County Board and City Council, and were recorded by county personnel. We found that the sunscreen-shielded office was as much as 20° cooler.

The KoolShade Sunscreen, made by Reflectal Corporation, subsidiary of Borg-Warner Corporation, Inc., Chicago, is a miniature venetian blind. It consists of fixed tiny horizontal bronze louvers just 0.05-inch apart. They are spaced and tilted at an angle of 17°—the angle that screens out the maximum amount of solar heat and glare at all hours of the day.

As the sun's rays reach the sunscreen, the louvers intercept them and reflect them back to the outside before they reach the glass window. As a result, as much as 89% of the sun's hot rays are intercepted. At the same time, the screen is almost invisible from inside the window. It permits up to 83% clear, outward visibility. Moreover it eliminates the glare and the heterogeneous regulation of blinds that makes many buildings unattractive on sunny days.

From the standpoint of economy, we measured thermal conductivity on all four exposures of the building during the past year. We chose key dates in spring, summer, and autumn and various times of the day so we could get a full picture of the effectiveness of the screen.

Our observations showed an impressive BTU differential over the more than 16,000 square feet of glass.

The sunscreen produces a saving of over 168 tons of air conditioning during peak heat-load periods. By rule of thumb, this represents a saving of over $158,000.

Over and above the initial installation cost of an air-conditioning system, there is the operating expense. By rule of thumb, operating costs generally run about 5% of the installation cost annually. On this basis, annual costs of an air conditioning system for our new structure would have run on the order of almost $8,000 annually.

This hammermill transforms bulky refuse into a homogeneous, easily-compacted mass that more than doubles the life of a disposal area.

High-reduction portable crushing plant aids sanitary landfill operation by providing . . .

Better Fill for Land Reclamation

By **HENRY A. NELSON**
Commissioner
of Public Works
Racine, Wis.

A steady rise in the volume of rubbish collected, the lack of available wasteland, and the ever-increasing cost of land suitable for a sanitary landfill operation posed a serious problem for the City of Racine. We feel this has been pretty much solved through an innovation in refuse disposal—that of reducing the volume of the refuse before placing it in the fill.

Racine, with an estimated population of 84,000 people and an area of approximately 10.8 square miles provides both garbage and rubbish collections, each under a separate division of the Department of Public Works. We dispose of the garbage through incineration and the rubbish through a sanitary landfill operation.

In 1957 our rubbish collections amounted to 360 cubic yards daily, or about 20% more than in 1952. Land quotations to the city were extremely high per acre for sanitary landfill operations. To ease the problem, Racine decided to condense its burial-type refuse with a portable crushing plant.

The city purchased a Pettibone Universal Refuse Crusher, a product of the Universal Engineering Corporation of Cedar Rapids, Iowa. Mounted on a portable truck frame, it consists of a 36-inch-wide by 32-foot-long apron feeder that carries the rubbish to a Bulldog Hammermill having 21 hammers. Powered by an International engine, the hammers swing at 889 rpm, shredding and powdering everything in their path, depositing the end product on a front delivery conveyor which then carries it to a waiting truck.

Bulk Reduction

The unit has a factory-rated reduction ratio of 4 to 1, and reduces the bulk size of refuse at about the same ratio. This, of course, varies with the type of material being crushed. To illustrate this reduction, a cast iron sink went through the plant and emerged in an almost powder form except for the smashed-up copper and steel drain outlet. An old-style "thundermug"—you know the kind—and this one with roses on its side, went through the crusher, but after crushing, we could not even locate the roses.

Two men handle the sanitary landfill operation. One supervises the unloading of the trucks and inspects the loads; the other operates the crusher. The dumping supervisor drives the truck loaded with the crushed rubbish from the crusher to the fill site and the crusher operator spreads it with a bulldozer. We spread the crushed refuse in layers not exceeding three to four feet before covering with a foot of earth. The fill site will be 12 to 13 feet in depth when completed.

Fourteen trucks, most with 16-cubic-yard packer bodies, collect the rubbish from some 25,500 homes on a weekly basis. Each load is inspected for obvious salvage material or occasional tree branches—and is then passed through the crusher in 5 to 10 minutes.

We placed the unit in operation in May of 1958 and have used it continuously since then except for several brief shut-downs during severe weather this past winter. It is now operating on a 40-acre tract of land west of the city. We expect to fill this area in about three years.

Dust Problem

We did run into a dust problem toward fall. Ashes are collected with the rubbish, and these created the dust. This was solved by building a cab for the crusher operator and installing spray pipes over the feeder to water down the

Refuse goes into the crusher looking like this . . .

material. Water is not used during our freezing winter weather.

It has been Racine's dream to improve its entire lake front (Lake Michigan), and presently negotiations are being conducted to obtain riparian rights for the entire length of the city. In the past, owners of lake front property were reluctant to grant such rights, claiming that cans and bottles from the rubbish would be washed into the lake and cause an unsightly condition. However, the crusher produces a more desirable fill that will eliminate this possibility and we expect no difficulty in obtaining riparian rights.

The city has already engaged a consulting engineering firm to make a complete study with recommendations for lake front development, and plans are now under consideration.

We realized Racine would be a pioneer in this type of operation at the time of purchase of the crusher. Small problems arose but they were quickly solved. After considerable experience we feel that the plant is fulfilling its intended purpose.

The unit's portability is also a definite asset. It permits cutting down the hauling distance from the crusher to the actual fill site as the area is covered and the distance becomes too great for economical operation.

. . . and comes out like this. The crushed material produces an extremely stable fill with no evidence of settling.

On Fire-Police Integration

By **ROBERT B. MORRIS**
Village Manager
Glencoe, Ill.

Many municipal officials are faced with five police and fire problems:

1. How to attract qualified police and fire applicants,
2. How to justify paying higher salaries to police and fire personnel,
3. How to improve police and fire working conditions, including reducing work weeks,
4. How to improve police and fire services at nominal cost, and
5. How to better utilize the time and capabilities of policemen and firemen.

When is fire-police integration the solution? It will be the answer in your city only when your city council, fire chief, police chief, firemen, and policemen are sold on its merits. Any form of integration should be started only after weeks, even months, of work with police and fire officers and employees.

Officials in cities having some form of fire-police integration find that opposition to integration comes mainly from firemen and policemen and from fire and police groups. It is, of course, not unusual that individuals and groups who are closely identified with *either* police or fire (but not with both) would oppose integration in any form. There has been no problem in recruiting the higher level public safety officers, who are better paid and who have interesting, challenging jobs.

Fire-police integration means complete integration; it means partial integration; it means combined, coordinated, or cooperative fire-police services.

Some form of integrated fire-police service has proved successful in a number of cities varying in size and character, including Oakwood, Ohio, Sunnyside, Calif., Oak Park, Mich., and Glencoe, Ill.

These four cities represent different types of communities. Glencoe and Oakwood each have about 10,000 population and are old residential communities with limited business and no industry. Sunnyvale and Oak Park have from 30,000 to 40,000 population and are new communities with rather extensive business and industrial areas.

In these cities, the integrated system has proved successful to their city councils, their police-fire employees, and to the public.

Integration in some form seemed to be the answer in Glencoe in view of the following statistics: Ninety per cent of all fire calls in our small community from 1952 through 1954 were handled by minor fire equipment or manpower without the use of volume or booster pumps, hose, or ladders. And, during this same three-year period, our fire apparatus was out of the station answering alarms only an average of 11 minutes a day. This meant that our firemen were not answering alarms during 23 hours and 49 minutes out of every 24-hour day.

Glencoe's director of public safety says that he does not recommend fire-police integration point blank. He *does* believe that there are two desirable features of any form of fire-police integration that could be adopted by any city, regardless of size. Feature one is to equip police squads with fire extinguishers, inhalators, and fire clothing, and train policemen in the fire-fighting and rescue techniques. Feature two is to train firemen to perform police duties that can be done during their otherwise standby duty time.

Some critics have said that fire-police integration has been around for 80 years, so that if it were any good, it would be universal by now. Eighty years ago was 1879, just eight years after the great Chicago fire. Today's integration cannot be judged by its effectiveness in 1879 or indeed, even in 1949. The potential of integration could not be realized until three-way radio and other technological improvements became widely used in the fire and police services. Integration today has little in common with integration in 1879, just as today's fire apparatus bears slight resemblance to that used 80 years ago.

The advantages of fire-police integration may be summarized:

1. More trained manpower available for either fire or police duty;
2. Single hierarchy of command resulting in no duplication and better planning, coordination, public relations, training, and communications;
3. Faster and better fire and police services, including increased patrol and increased fire prevention activities;
4. The public safety officer is usually paid more; he must know more; his job is more challenging; and he is more valuable because he is trained to perform both police and fire duties.

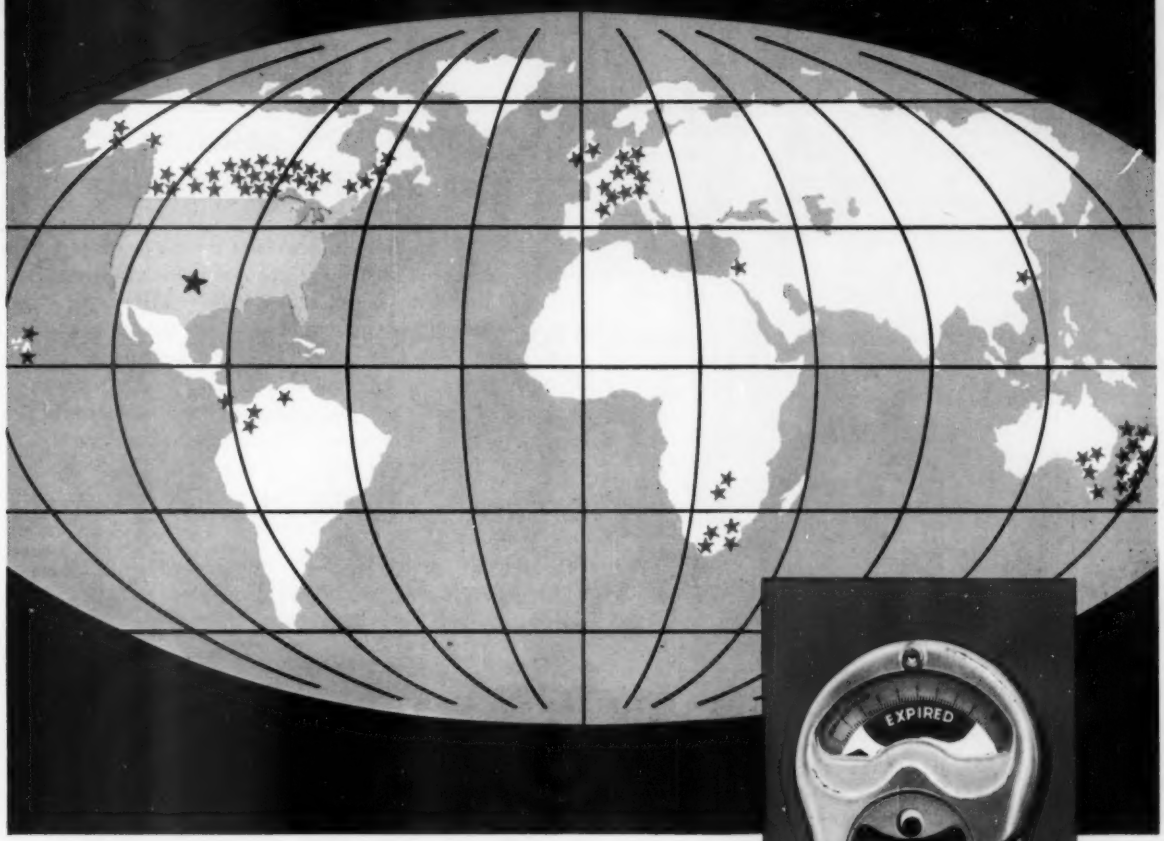
However, many questions about fire-police integration have not been answered. Much remains to be developed in this field.

EDITOR'S NOTE: May we hear from others who have waded into this subject?

Scooter-Type Dog Ambulance

Sick and stray dogs get "scooterized" transportation in Rome, Italy, thus saving the cost of truck transportation and permitting a little more flexibility in maneuvering through traffic.

PARK-O-METER LEADS AROUND THE WORLD!



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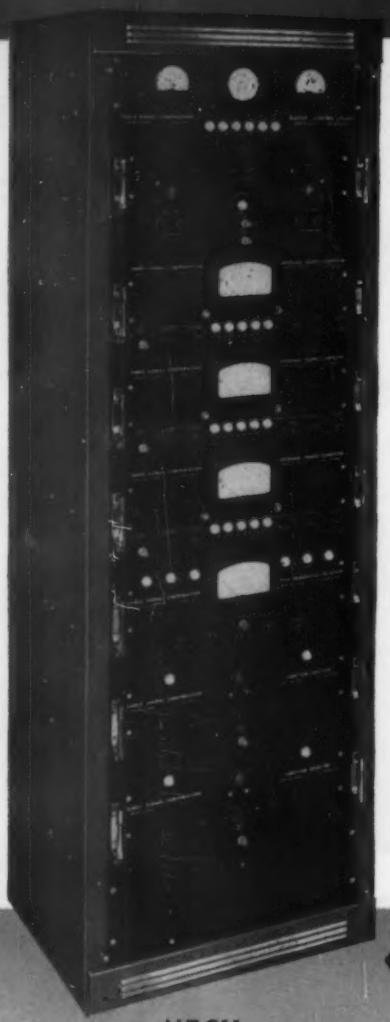

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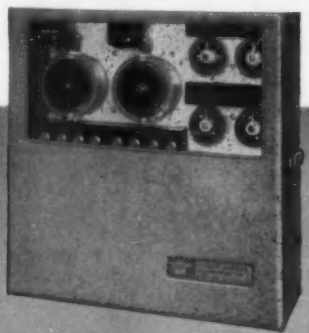

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The front of Richmond's new traffic engineering building.

Traffic Engineering Building for Richmond

By **S. T. BAKER, Jr.**
Assistant Traffic Engineer
Richmond, Virginia

Richmond's Bureau of Traffic Engineering now occupies its Traffic Engineering Operational Building, a dream of ten years come true.

J. T. Hanna, the first city traffic engineer in 1948, sought better facilities. The project had to be postponed many times. One strategic move that apparently had some effect on obtaining this building was to change the name from "Paint Shop" to "Traffic Engineering Operational Building." A Paint Shop had sounded like a small room with a spray gun. "Operational Building" was approved on the second try.

We are not only well pleased with the functional design of the building but pleasantly surprised at the eye appeal of the inside and outside accomplished by the local architects, Whitmore and Chichester. Ample daylight and/or fluorescent light is supplied throughout the 10,027 square feet of the building.

Operating from this facility, Richmond's 40 square miles and 590 miles of streets can be better served.

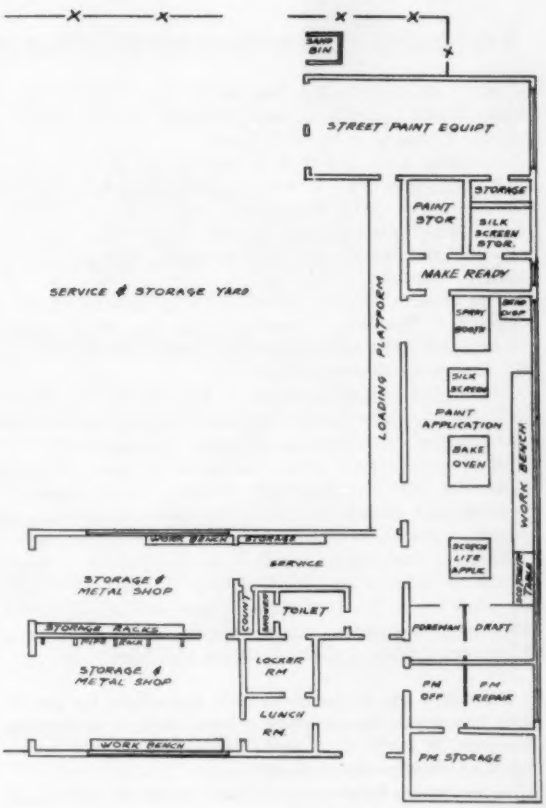
The building is the base of operations for 21 persons, five in the Parking Meter Division, 15 in the Sign Division and one from the Traffic Counter Division (part-time). All working spaces are on the same level making internal transportation easy from a covered truck-level loading dock. Tractor trailers can enter the storage and metal shops to unload and ¾-ton trucks can be housed in the street painting equipment room. Practically all types of signs can be fabricated by our own personnel with equipment now installed.

A uniquely designed table, courtesy of the Virginia State Highway Department, stores rolls and sign faces of Scotchlite adjacent to the vacuum applicator. A cutting device built into this table eliminates waste.

All silk screens are applied to a universal size frame for easy storage in custom built racks in the vented storage room especially designed for this purpose. These screens enable mass production when used with the vacuum printer and folding drying rack constructed to hold 500 12"x18" signs. Cleaning silk screens is simplified by the use of a large galvanized sink equipped with a 40-gallon solvent tank and pump unit. This unit permits the fluid to settle and be repumped and reused many times as a cleaner.

Completed signs and raw materials are stored in ceiling height bins accessible by a permanently installed rolling ladder. Wall racks for the storage of pipe and posts further conserve floor space.

At one end of this building the street painting room



Layout of the new building.

is connected yet separated from other unrelated operations. Separate quarters for this operation reduce conflict among personnel, especially during the summer days when working hours differ. This room is equipped with a carbon monoxide exhaust fan that permits inside cleaning of the three line stripers used on the 98 miles of painted roadways and crosswalks.

The Parking Meter Division has a record room, repair room, and a storage room. Five men care for the 2,900 Park-O-Meters. Using two trucks, one provided with a two-way radio hook-up, they wind, inspect, repair, and collect from the meters.

An L & R Monarch cleaning machine, a jeweler's lathe, and a working bench for two keep the meters in top repair.

Map tacks and numbers representing types of meters are spotted on maps mounted on a folding type rack for ease in locating each meter complaint. Performance and repair records are constantly maintained on each meter. Pigeon hole storage racks are used for spare meter heads.

Traffic counters are stored, repaired, and charged in a room provided for this purpose.

Compressed air is piped throughout the building for spraying, dusting and pressure. Fittings are of the quick-fit type and well spaced, making air available in all parts of the building.

A two-way intercommunication system, a master unit in the foreman's office and four outlets simplifies contact with all areas. This system actually "bugs" all of these points by button control at the master.

A paved yard, approximately 150 by 200 yards enclosed by a six-foot-high fence, provides outside storage and service space. An open parking area is provided in front of the building.

This is the third new city building constructed in this area. A complete automotive shop, an operational building for the Department of Public Works preceded our facility, and now a combination office and warehouse is under construction for General Services.

Signs and materials are stored in ceiling-high bins reached by a rolling ladder.

Toledo Shoppers' See-Way

The City of Toledo, Ohio on August 3rd opened a four-block pedestrian mall, replete with exhibits, music, statuary, trees and flowers, a supervised children's play area, benches, fountains and other attractions for shoppers. It was the flowering of plans by Downtown Toledo Associates, city and county officials, and downtown merchants. After 45 days, city officials will decide whether to make the pedestrian mall permanent.

The Downtown Mall is officially designated "Toledo Shoppers' See-Way," linking it to the city's recent emergence as a world port with the opening of the St. Lawrence Seaway.

Besides the appropriation of $15,000 in city funds and county labor, civic minded private businesses are making contributions of labor and service.

A 67-square-foot model embodies in three dimensions the best thinking and planning of six teams of professional architects who volunteered their time to create a vision of "Downtown Toledo Tomorrow."

Each of the teams worked on individual sections of the downtown area to show how it could be rebuilt or improved. Their finished plans are incorporated into the downtown model which is covered by a Plexiglas dome. Salient features include:

Attractive use of the downtown waterfront by conversion into parks incorporating a band shell, a modernistic museum, a yacht club, docks for pleasure craft and a block of prestige apartments.

A downtown bordered by several blocks of new apartments renting in the medium to high range, in an area for which plans are already in motion for redevelopment as an urban renewal project.

An expressway serving the downtown area.

Ample downtown parking, including four new parking garages and a two-level underground parking area beneath the landscaped riverfront area.

Retention of the experimental pedestrian malls.

A modern, downtown convention hall with a tree shaded pedestrian mall.

Extension of the present "Civic Center" for the grouping of public and semi-public buildings.

Modernization of existing structures by refacing with aluminum and glass.

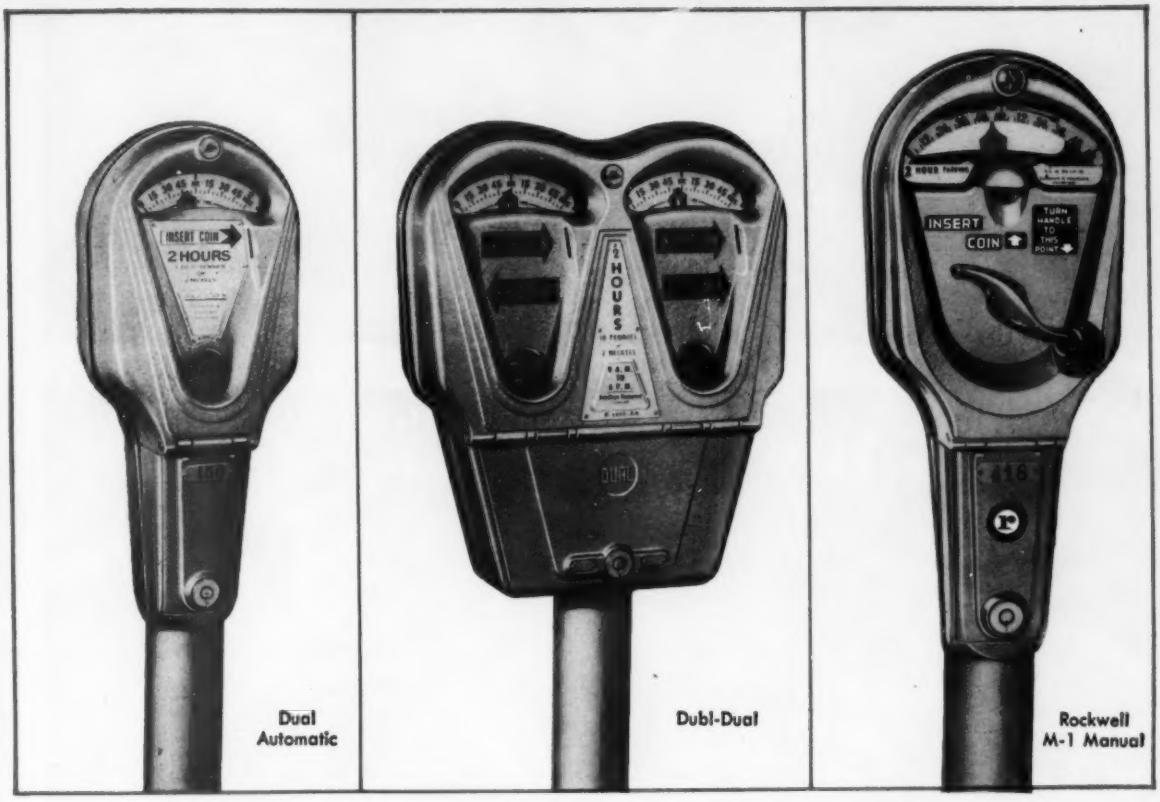
Razing of many substandard structures and conversion of the sites temporarily to parking areas.

The downtown master plan has been two years in the making and many of the plans for future improvements are already in existence.

Landscaping plans include planter boxes along sidewalks; the moving in of 600 cubic yards of topsoil and 350 square yards of sod for grass areas. Trees to be used are 21 silver maples; three mountain ash; four flowering crab; 22 white birch; 25 green ash; four moraine locust; six Rose of Sharon and 25 black hill spruce.

The removal of parking meters and street signs, rerouting of traffic, arrangements for truck deliveries and mail pickups, routes for emergency vehicles and scheduling of work crews are only a few of the details necessary for America's first prolonged Downtown Mall experiment—Toledo Shoppers' See-Way.

On Street or Off Street . . .
Single or Double Meters . . . Automatic or Manual



WHATEVER YOU WANT

Rockwell Has the Meter For You

With the addition of the Rockwell M-1 Manual meter, the Rockwell-built Dual parking meter line gives even more flexibility for meeting a wide variety of metered parking needs. You can now select from single and Dubl-Dual automatic meters and the new Rockwell M-1 Manual that will take five coin combinations through a single slot. There's no need for compromise . . . you can get the meter *you* want.

If you are planning parking meter installations or replacement of existing facilities, why not have a Rockwell man call? He will show you special planning programs based on 25 years of parking meter experience and know-how. And he will show you why Rockwell-built Dual parking meters will produce more revenue through longer life and lower cost. Dual Parking Meter Company, Subsidiary of Rockwell Manufacturing Company, Pittsburgh 8, Pa.

DUAL PARKING METERS
another fine product by
ROCKWELL

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Rockwell Manufacturing Company
Pittsburgh 8, Pa.

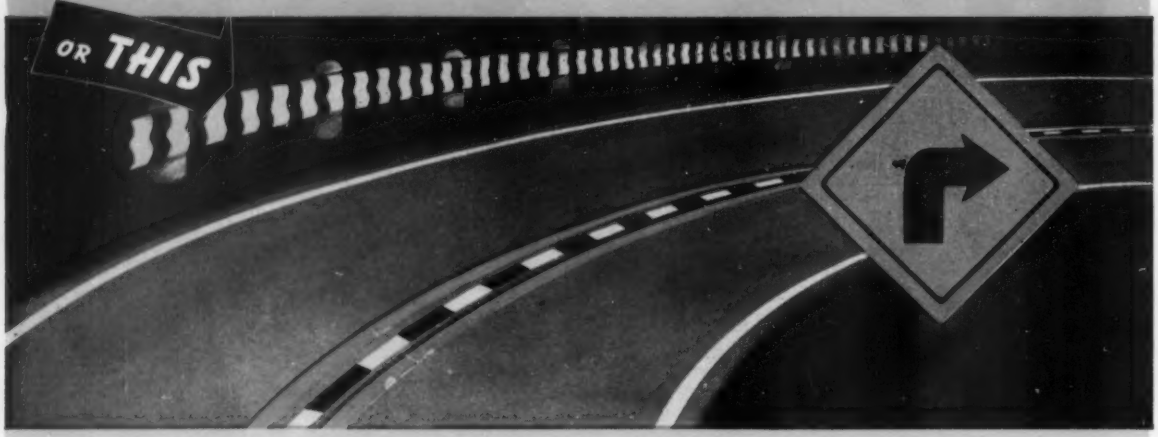
_____ Please send details on the Dual Parking Meter line.
_____ Please have a Rockwell field engineer call.

Name: _____ Title: _____

Address _____

City: _____ Zone: _____ State: _____

DO YOUR TRAFFIC SIGNS LOOK LIKE...



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LEAD-FREE REFLECTIVE GLASS BEADS COULD MEAN THE DIFFERENCE

Signs employing the finest reflective materials are adversely affected in a number of ways, such as by moisture, thermal changes and dirt . . . as well as acts of vandalism, accidental breakage and normal wear and tear. Further, the sulphides in industrial fumes attack glass beads containing lead, causing them to turn dark, with a consequent loss of their reflectiveness and visibility. Maintaining adequate visibility through fair weather and foul for maximum safety is a *must*. To ignore this fact is bargaining with lives. So, it is just common sense to buy lead-free beads that won't turn dark. That's why street and highway engineers specify Flex-O-Lite Lead-Free Reflective Glass Beads —with full confidence in their maximum brilliance and lasting reflectivity throughout a longer life. Specify the beads proved best by test. Insist on Flex-O-Lite Lead-Free Reflective Glass Beads. Write for free, informative brochure.

- **8831 REFLECTIVE GLASS BEADS**—Best for white and yellow signs. Meet and exceed all test requirements . . . microscopic, acid, sodium sulphide, spherical content, gradation.
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- **FLEX-O-LITE FREE-FLOWING TRAFFIC LINE BEAD DISPENSER**—New, simplified. Affords years of trouble-free operation. Ideal for municipal and highway use. Attaches to any traffic line paint machine. Satisfaction guaranteed.
- Ask about our Sign Bead Applicator.

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FLEX-O-LITE MFG. CORPORATION

8301 FLEX-O-LITE DRIVE • P. O. BOX 3066 (AFFTON BRANCH) • ST. LOUIS 23, MO.

Traffic Improvements In Little Rock

Four bridges over the Arkansas River connect with winding Main Street.

On April 19, 1958, the first traffic engineering department of the city of Little Rock, Ark., was established. The first traffic engineer was hired and the work of straightening out the city's traffic problems began. The first problem was a tangled mess of traffic choking the streets of Little Rock.

The traffic engineering department has enjoyed the full backing of the city's Board of Directors and superb cooperation from the citizens of Little Rock. Already the driving habits of the public have improved. One of the least expensive street widening programs in municipal history was accomplished by removal of parking, installation of one-way streets, lane control signalization and street striping. Some of the 200 major changes made in the last year are listed below:

1. One-way streets operate in all sections of the city.

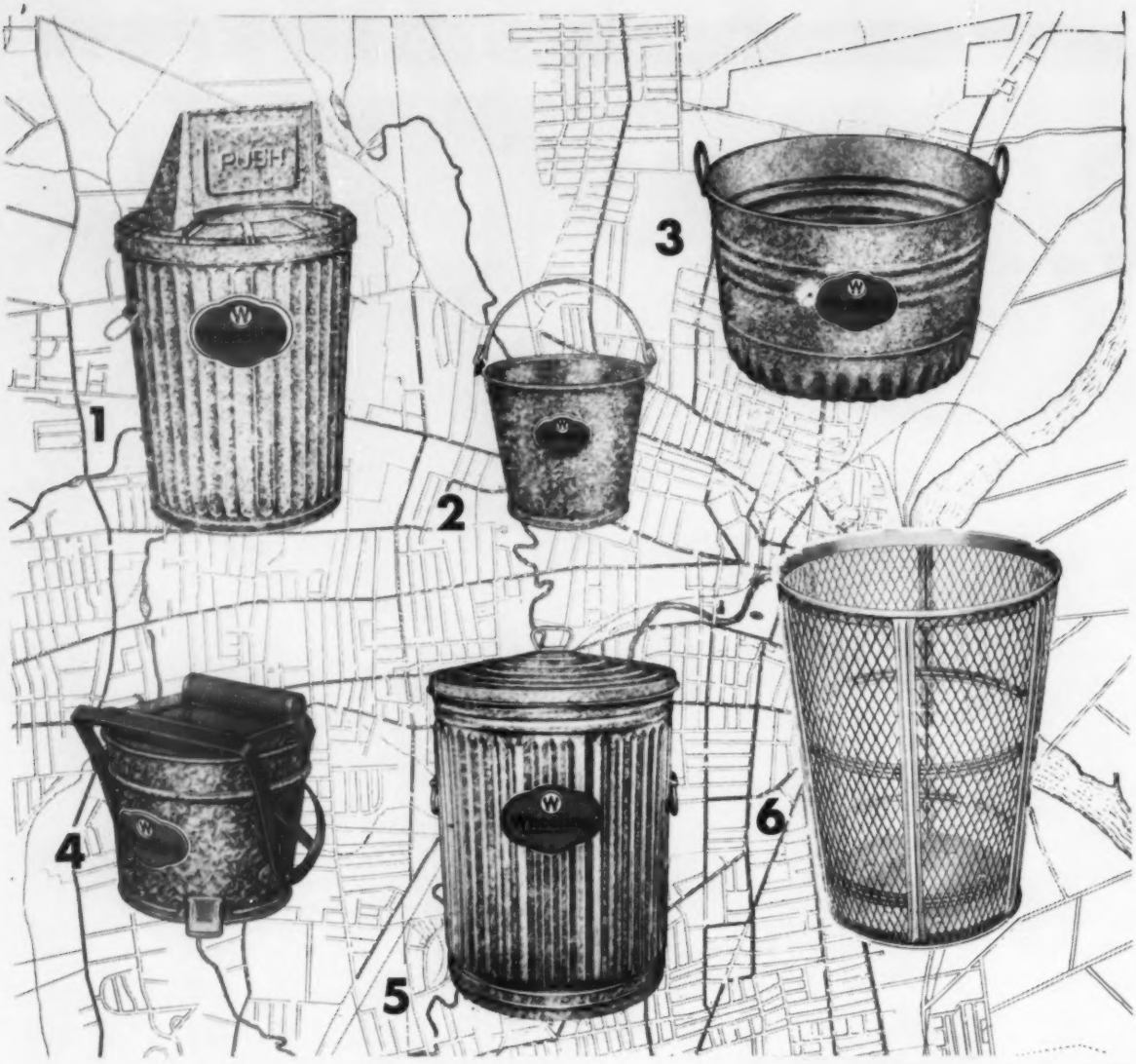
2. No-parking restrictions have been put into effect on numerous streets. No-parking restrictions are in most cases a 24-hour order. Some apply during the rush periods from 7 to 9 a.m. and from 4 to 6 p.m.

3. Traffic installations have been made at many dangerous and heavily traveled intersections. The first fully automatic traffic signalized intersection in the State is at Stifft Station (Kavanaugh and Markham Streets).

4. A comprehensive paint striping program was put into effect, using 3,000 gallons of paint over 250 miles of center and lane lines; 600 school crosswalks; pavement school legends, parking stalls and directional arrows, making it possible to utilize the streets to the full capacity.

5. Signalization for three-lane control on 1½ miles of Highway 10 was put into effect, cutting the traveling time of the motorists using this street by fifteen minutes. Signal changes made at one of the

The eight individual lane lights are Econolite signal heads operated by an Automatic Signal controller using radar detectors on the approaches to the intersection.



6 ways Wheeling can help cut your city's maintenance costs!

Your city can be cleaner, more attractive – and maintenance costs lower – with heavy duty Wheeling Ware on the job. Parks and playgrounds, streets and public buildings—all are easier to maintain when Wheeling Ware lends your workers a hand.

And Wheeling Ware is built to stand rugged use, too. It's hand-dipped in Wheeling's exclusive Dura-Zinc-Alloy for protection against rust. It's made with tight seams, sturdy handles, snug-fitting lids. And each item of Wheeling Ware is custom made for the job it's designed to do.

Any Wheeling product you want is ready for immediate delivery from the warehouse nearest you . . . the same day if needed. For details contact the Wheeling warehouse or sales office.

Wheeling

1 SWING DOOR COVER with can makes an ideal refuse container for indoors or out. Large door opening.

2 HEAVY DUTY PAIL is made from heavy gauge rolled steel. Rugged top wire and bail. Intended for continuous hard use.

3 UTILITY BASKET is strong and light. Easy to carry. Handy for cleaning up leaves, twigs, other street litter.

4 HEAVY DUTY MOP BUCKET is leak-resistant, rust-resistant. Heavy birch wood rolls, large foot holder, positive-pressure wringer action.

5 HEAVY DUTY UTILITY CAN and cover makes an all-weather garbage, ash and trash container. Top and bottom reinforcing bands.

6 EXPANDED METAL REFUSE BASKET has a rugged, attractive open - diamond design. Welded reinforcing bands, one-piece dished bottom. With or without apron.

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most heavily traveled intersections in the city, Main and Markham, corrected a severe traffic bottleneck.

6. Parking meter removal at all corner locations in the central business district expedited the movement of traffic at the intersections.

7. A complete new sign program (using signs manufactured in the city's new sign shop) aimed at replacing all old and worn traffic signs. Over 10,000 traffic signs were manufactured in the past eight months and many more thousands will be made in order to clean up old signs and put new restrictions into effect.

8. Stop signs installed at almost every intersection entering any major through-street throughout the city, giving protection to the through-street traffic.

9. A new street name marker program was begun to provide fully reflectorized white and green aluminum street name markers for all of the city's 8,000 intersections.

10. Installation of 12-minute meters at locations where a fast turnover of parking is needed, and turn restrictions imposed at many intersections to expedite the traffic movement.

The Little Rock traffic program is by no means complete. Continuing traffic counts, surveys, and investigations will be made to determine the hundreds of improvements needed for better and safer traffic movement. This will include additional one-way streets, additional removal of parking, signalization of many complicated, hazardous and highly traveled intersections, installation of a complete new automatic master control system in the central business district to be completed by the end of 1959.

Many miles of street striping will be added. Parking restrictions such as one-hour and two-hour parking, and no parking during rush hours, will be installed on many streets. Additional three lane signalization control of narrow roadways will be put into effect in order to utilize every foot of street. An engineering program of street widening will be carried out during the next year on streets such as Markham Street, which will be widened for a length of one mile in order to gain two additional lanes. The new Eighth Street expressway reaching from one end of the city to the other, will be started in 1959. Cantrell Road will be widened to four lanes for a length of over four miles.

All this was achieved because of the mutual cooperation of the citizens and the city officials of Little Rock, who made this program possible.

A new green and white street name marker made of extruded aluminum panels (Alcoa) is completely reflectorized (Minnesota Mining & Mfg. Co.) and is being placed at each of 8,000 intersections. The latest type of street striping machine has been purchased (Wald Town and County Striper), enabling the city to paint streets better, faster, and more cheaply. The city is now painting lines at the rate of approximately 12 miles in an hour.

Actually, the surface has just been scratched; but the people in Little Rock today know that something is being done in traffic. People can drive from one part of the city to another, not only more rapidly, but also more safely than in the past. To sell this program, the traffic engineer made 136 television appearances and over 180 speeches. He has his own television program two nights a week—

The city's jeep-mounted Wald striper operates at 12 mph and reduces painting time by 70%.

on Tuesday and Thursday nights. In addition, many other programs concerning traffic have been held on Sunday afternoons on television and on Sunday evenings on radio. Another new television program for the same purpose will be put on the air soon; 15 minutes every Friday evening.

HENRY M. DE NOBLE
City Traffic Engineer, Little Rock, Ark.

Bad News for Parking Meter Vandals

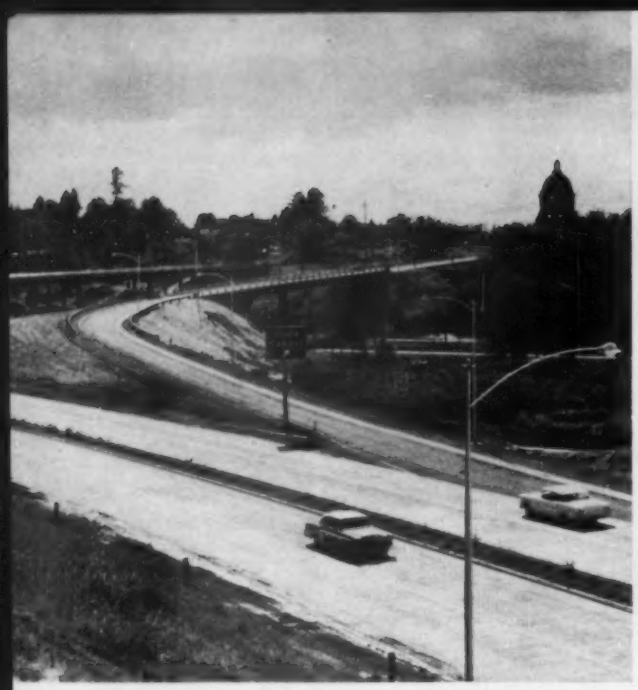
Parking meters are becoming a challenge to juvenile delinquents and their elders as well. The meters are like so many safe deposit boxes set on top of posts of convenient height. Because the problem of vandalism had reached serious proportions in some large cities—notably Cleveland, Philadelphia and New York—the Municipal Index 1959 surveyed the subject and published the findings (pages 714-715).

How is the crime combatted? Usually by cooperation of police, courts and parking authority. In Pittsburgh, for instance, the Bureau of Police is notified of all vandalism and plain clothes officers have arrested a number of juveniles. The parents are assessed damage costs by the Juvenile Court.

A mechanical method, available but not yet in use, consists of adjusting the meters so that the coins fall down to the base of the parking meter post and a vacuum tube collects the coins by sucking them out into a sealed chest. This method was demonstrated by Complete Machinery and Equipment Co., Inc., Long Island City 6, N. Y., at the annual meeting of the Institute of Traffic Engineers in September.

The latest defense is to make the parking meter almost too hard a nut to crack. The Duncan V. I. P. meter (vault insured protection) was developed by Duncan Parking Meter Div., 835 N. Wood St., Chicago 22, Ill., to combat the costly destruction of parking meter equipment and theft of meter revenues. V. I. P. is not just something catchy. With each meter order the company will issue a one-year insurance policy indemnifying the city against physical loss due to vandalism.

Collection housing and door with inside hinges are constructed of malleable cast iron. A double-bolt lock is entirely hidden underneath the cast-iron door. The meter is resistant to prying chiseling, hammering and lock-picking.



INSTALLATION of Line Material Uni-Ballast systems provides power for the Ovalite mercury vapor luminaires at the two largest interchanges on the Olympia Freeway.

NIGHT VIEW of a most important interchange, this "off ramp" provides direct access to the Capitol, Olympia, Wash. Ample light makes these interchanges safe for night traffic.

L-M Lighting Provides Economical Solution on New Olympia Freeway

Cost of original equipment plus installation and operating economies were prime considerations in choosing L-M's exclusive Uni-Ballast(TM) series system and L-M Ovalite(TM) mercury vapor luminaires.

The newly constructed and recently opened Olympia Freeway provides a beautiful, safe artery for traffic flowing to and from the Capitol Building at Olympia, Washington. In addition, a five-mile section of primary State Highway No. 9 has also been opened to traffic. Both are built to modern freeway standards and since they are primarily in-town highways, many interchanges have been provided.

Chose L-M "Ovalite" . . . These modern thruways have been made as beautiful and safe at night as they are by day, through well-designed, well-located highway lighting. All interchanges have high-intensity lighting to assure the utmost in safety. Fill-in lighting is used in all areas where ramp connections are within 600 feet of each other. The Washington State Highway Department chose L-M horizontal-burning Ovalite mercury vapor luminaires mounted on spun-aluminum poles for this most essential lighting.

Series System at Interchanges . . . At two of the largest interchanges, the Freeway tie-in to the Capitol Building and the junction of the Freeway and Highway No. 9, the problem of supplying power to individual light standards was encountered. Because of the distances involved, a series power supply proved to be the only practical way to keep copper sizes down, and keep costs within reasonable limits.

"Uni-Ballast" System Cuts Costs . . . After careful analysis of both installation and operating economies of all available series lighting equipment, the Highway Department decided upon Line Material's exclusive Uni-Ballast system. The Uni-Ballast system is a constant current series system designed by L-M for mercury vapor lamps. This system completely eliminates the necessity of individual ballasts at each luminaire, allowing substantial savings.

L-M Lighting Application Engineering . . . The lighting of these modern expressways is typical of the many installations of L-M lighting equipment. With a complete line of outdoor lighting equipment and a qualified staff of Lighting Engineers anxious to work with you, Line Material can help you arrive at economical solutions of most of your lighting problems.

Get Complete Information . . . For complete information on the L-M Ovalite, the exclusive Uni-Ballast system, or all L-M outdoor lighting equipment ask your L-M Field Engineer or Lighting Engineer; or write Line Material Industries, Outdoor Lighting Division, Milwaukee 1, Wisconsin. In Canada: Canadian Line Materials, Division of McGraw-Edison Company (Canada), Limited, Toronto 13, Ontario. 417

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McGRAW EDISON

The Thompson Wide-Lite portable lighting system demonstrates large-area floodlighting.

Portable Outdoor Lighting

In a dramatic night-time road-building demonstration the Thompson Tractor Company of Birmingham, Ala., made public for the first time a unique new portable lighting system for construction sites.

The Thompson Wide-Lite* Portable Lighting System provided illumination for "Operation Nightfall," a night-time demonstration of Caterpillar earth-moving equipment. The Birmingham firm is the Caterpillar dealer for north Alabama.

This significant application of Wide-Lite area lighting was hailed an immediate success and it was speculated that similar applications could put construction of the nation's highway system on a 24-hour basis.

Billed as the "Greatest Show on Earthmoving," the demonstration took place at an interstate highway building site in the Birmingham area. Some 450 people witnessed the "earthshaking" event and watched the road-building equipment perform under near-daylight conditions in a construction area five-eighths of a mile long.

The Thompson Wide-Lite portable lighting system consists of a series of telescoping towers, each of which supports three Wide-Lites using 1,000-watt color-corrected mercury vapor lamps. The tower itself is of tubular steel fabrication and is mounted on a rubber-tired trailer, complete with trailer hitch and worm gear drive winch for raising the tower. Lowered, the tower is 20 feet long, and in vertical position it extends to 37 feet.

The towers are connected by 300-foot or 500-foot conductor cables, and electrical power is generated by a Caterpillar diesel electric set.

Eight towers were used in the demonstration, each supporting three Wide-Lite area lights. The towers were placed at 300-foot intervals along one side of the construction site and were connected by six conductor cables. Waterproof plugs and receptacles connected the cables to the towers and the generator.

Terrain permitting, the Thompson system can utilize 10 towers at 500-foot intervals, to bring one mile of construction area to a near-daylight condition.

The Thompson Tower, in lowered position, showing the 1000-watt Wide-Lite Area Lights, trailer and connecting cables.

* Wide-Lite is a registered trade-mark of the Wide-Lite Corp., 4114 Gulf Freeway, Houston, Texas.

AGAIN UNION METAL LEADS IN NEW POLE ENGINEERING- FOR TODAY'S LUMINAIRES

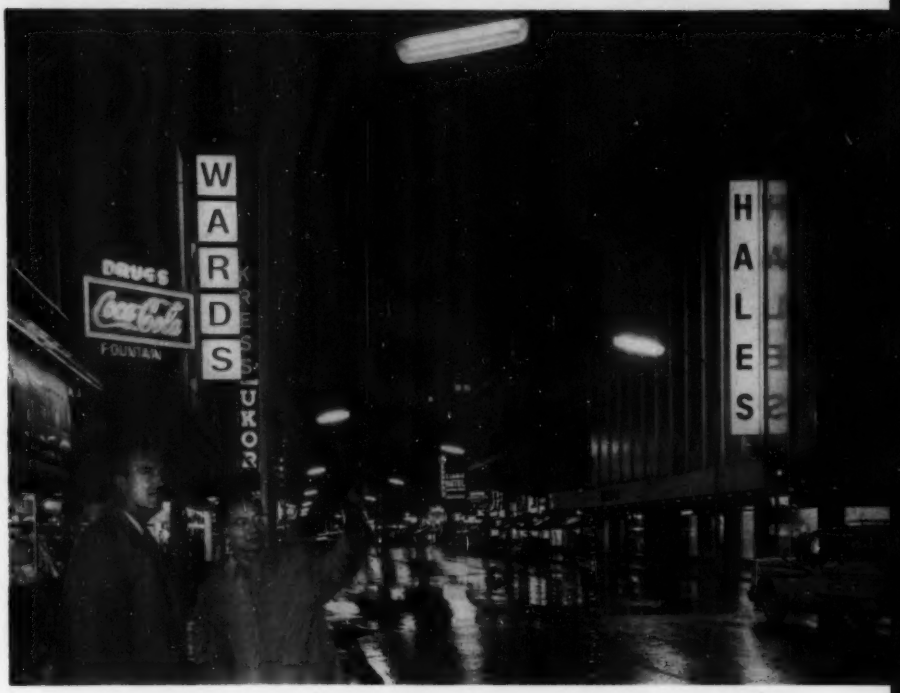
Announcing

BULLETINS LS-29 AND LS-30 featuring steel and aluminum poles properly engineered to meet today's rigid roadway requirements.

Monotube poles have the required "built-in" qualities for supporting the latest in filament, mercury and fluorescent luminaires.

Monotube Engineered Poles

THE UNION METAL MANUFACTURING CO.
CANTON 5, OHIO • BRAMPTON, ONTARIO



The assistant city engineer, J. Carl Jennings (l), discusses the recently completed whiteway lighting of Sacramento's downtown district with Joe F. Yee, the supervising electrical engineer who designed the system.

Relighting California's Booming Capital

Like many western cities, Sacramento, Calif. has had a happy case of growing pains since World War II. Population has increased 70% since 1940 and this has presented a host of problems.

In an attempt to keep ahead of the population boom, city officials have launched a 94-block downtown redevelopment project and a city-wide program of positive measures to speed traffic flow. A new traffic control system, one-way streets and off-street parking figure prominently in this large scale plan.

One phase of the program—a major street lighting modernization campaign—has already been completed. Residents and downtown merchants are enthusiastic in their praise of the new lighting system. "By adding a higher degree of safety to city streets, the new fluorescent lighting helps make Sacramento a better place in which to live, protects property values, and provides the proper environment for the State Capital," Mayor Clarence L. Azevedo said. "Our citizens recognize this and appreciate the city's efforts to provide such municipal services when and where they are needed."

Joe F. Yee, supervising electrical engineer for the city, designed the fluorescent lighting system for the downtown area. The Collins Electric Company installed the 80 General Electric luminaires. Pavement illumination, calculated at 1.92 foot-candles, is six to twelve times greater than before.

The new fixtures are mounted 30 feet above the street on Pfaff & Kendall davit-type aluminum poles at 100-foot staggered intervals. The poles arch out over the pavement placing the luminaires in the proper position for lighting the 52-foot wide street.

City officials anticipate low operating costs. Power Groove fluorescent lamps produce four times as much light from the same amount of current as the incandescent lamps they have replaced.

The downtown relighting is the most recent accomplishment of a program started in 1950 when Capital Avenue's problems came to the attention of city officials. The one-time peaceful avenue had become a traffic artery lined with commercial establishments. Existing ornamental units were no longer adequate. To solve this problem, they were supplemented by 19 General Electric mercury vapor luminaires, which were installed at intersections on steel poles at heights of 33 feet and at 100-foot intervals.

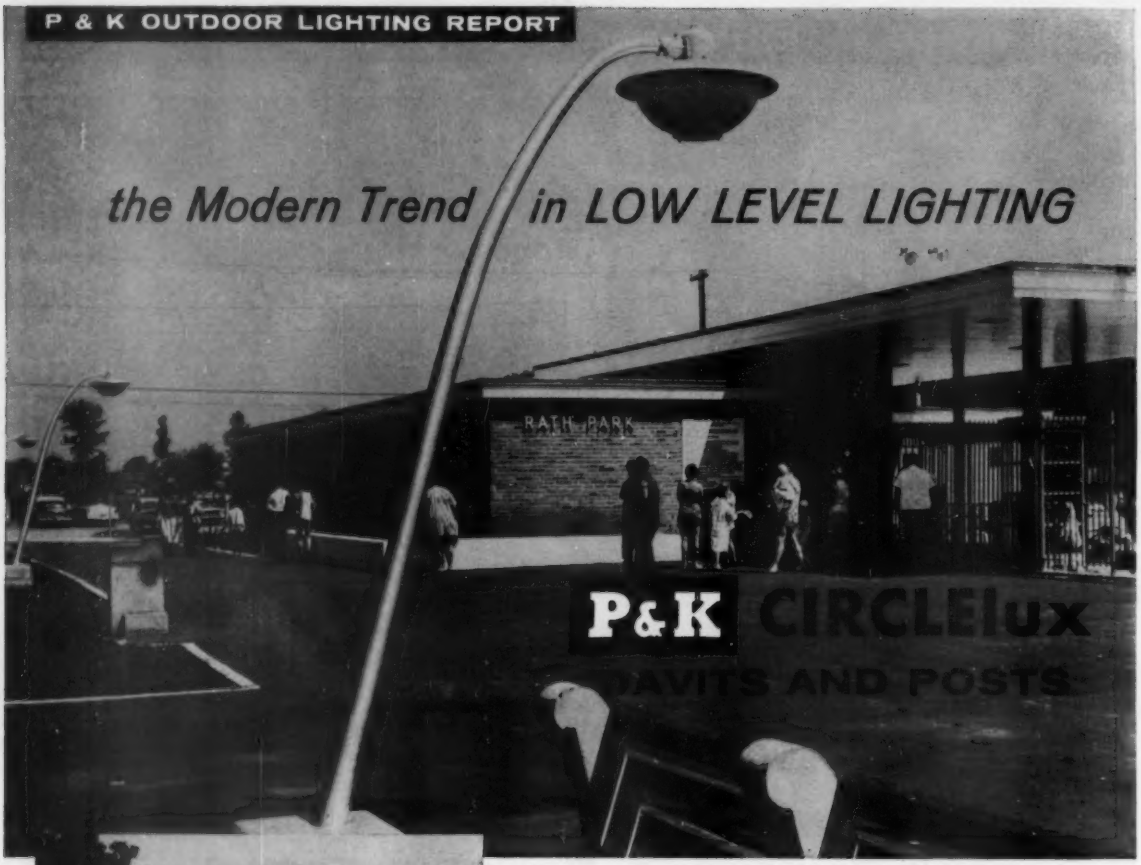
During the year prior to relighting there were 17 night-time traffic accidents and two fatalities on Capital Avenue. In the year following relighting, only three night-time accidents—and no fatalities—occurred.

City officials said the Capital Avenue statistics emphasize the need to continue the relighting program. Areas with high night-time crime and safety problems were given highest priority followed by commercial areas needing higher lighting levels to boost night-time business.

Encouraged by public reception of the program, Sacramento is extending the relighting program to include L Street from 6 to 16th Street, H Street from 7th to 16th Street, Broadway from 3rd to 21st Street, and many other intersections and danger zones.

P & K OUTDOOR LIGHTING REPORT

the Modern Trend in LOW LEVEL LIGHTING



TOP PHOTO: Location: Rath Park, Franklin Square, L. I., N. Y.
Architect: Herbert D. Phillips
Consulting Engineers: Barstow, Mulligan & Vollmer
LOWER PHOTO: Location: Fairleigh Dickinson University, Madison, N. J.
Electrical Consultant: H. L. Sykes

modern lighting at a realistic cost

Here are two contemporary outdoor lighting installations – one an all new municipal swimming pool and recreational area – the other, a prominent New Jersey University. Both chose the P&K all aluminum CIRCLElux lighting package to illuminate and compliment their roadways, walkways, landscape and architecture.

The sweeping lines of the P&K CIRCLElux davit blend with the modern one story architecture of the Rath Park Swimming Pool. Yet, the modern, but stately, design of the P&K CIRCLElux post is in good taste with the traditional architecture of Fairleigh Dickinson University. The CIRCLElux lighting package is the correct low level lighting choice to compliment almost all types of architecture.

The P&K CIRCLElux is available in a wide range of davit styles and mounting heights. The post is available in one basic design but at various mounting heights and with the CIRCLElux you have a choice of three light sources – incandescent, mercury vapor and fluorescent. This combination of luminaires and davits or posts will enable you to specify "packaged" lighting units. This means easier specifying by using matched components which in turn can customize your lighting projects.

Send in your reservation now for the *new* CIRCLElux catalog.

P&K **PFAFF & KENDALL 84 FOUNDRY ST., NEWARK 5, N. J.**

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First Fluorescents In Michigan's Upper Peninsula

Bright lights for Ishpeming's streets.

Neither snow nor darkness will hinder traffic in this Upper Peninsula winter recreation center. The City of Ishpeming, Mich. has increased traffic flow, decreased accidents, and beautified a business district covering 20 blocks. Through the activities of a farsighted City Council, the streets and parking system have been revamped and fluorescent lighting installed. Special assessments or bond issues were not required to finance these projects as the $160,000 expenditure was obtained from the capital improvement fund.

Rapid and efficient removal of snow from city streets is essential for driving safety, especially when the average annual snow fall is 150 inches. Therefore, the City Council adopted a plan to move the lighting poles, parking meters, and water hydrants from the curb, back to the property line. Removal of these obstacles increased the effectiveness of snow plowing equipment and reduced damage done to poles and meters by automobiles.

Traffic Flow

Traffic flow through the downtown area increased when the City Council took action to widen the roadway approximately four feet, install five new state-approved overhead traffic signals, and initiate a new method of "cluster" parking. Cars are now parked in pairs with a no-parking space between each pair. This method provides more parking room for each car without any loss in the total number of parking stalls and the time required for an automobile to enter or leave a parking space is reduced.

Recognizing that dimly lighted streets are an ever present driving hazard, the City Council voted to install 161 fluorescent luminaires, manufactured by Line Material Industries. A soft, evenly diffused light is produced by four 6-foot, high-output fluorescent lamps mounted in each shallow-globe fixture.

Two lamps in each luminaire are automatically turned off at midnight reducing the expense of operating high-intensity lighting when traffic is at a minimum. The light level is decreased by half while still maintaining even lighting.

The luminaires are mounted in 30-foot Union Metal davit-type steel poles and have been tilted 25 degrees above the horizontal to utilize effectively the 22,800 lumens produced by the four lamps in each luminaire. With a 70-foot staggered spacing in the downtown area, a maintained illumination level of 1.1 average foot-candles is produced.

The same scene by sunlight.

Citizens of Ishpeming have a right to be proud of their modernized business district. They are the first city in the Upper Peninsula to have fluorescent street lighting, and the 161 units installed represent only a start in a replacement program planned to extend over several years.

THOMAS R. MCNABB
City Manager

Bloomington Moves From Clusters to Mercuries

After 44 years with globes on cast-iron poles, Bloomington, Ill. considered installing color-improved mercury vapor luminaires on concrete poles downtown. The cost was to be defrayed by special assessment but the property owners protested vigorously enough to prevent the plan from being put into effect.

Two years later, some of these citizens asked the City to provide the modern lighting and 65 units of 20,000-lumen intensity were installed 80 feet apart on fourteen blocks. Other petitions brought more lights to Main Street.

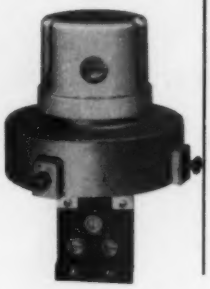
The consensus of business opinion seems to be that "the new lights exceed expectations in providing plenty of illumination, added traffic safety and livelier business." Police Chief Fred Giermann hopes the entire downtown will be similarly lighted.

Luminaire or slipfitter mounting, bases up to 3" diam. . . . Model 6600A. (For bases up to 3½" diam, . . . Model 6607A)

Pole or crossarm mounting . . . Model 6601A

Replacement plug-in for F-P Model S-64400 . . . Model 6604A. (Also, Model 6603A replacement for F-P Model S-64400GE.)

Ornamental pole top mounting . . . Model 6600A with S-485 adapter (adapter also available for poles with I. D. less than 3")



Bracket mounting . . . Model 6600A with S-487 clamp assembly.

FISHER-PIERCE 6600A PHOTOELECTRIC CONTROLS

no mounting problems here...

You can put Fisher-Pierce 6600A Series controls *into* service quickly, easily and safely in almost any location – and they'll *stay* in service for years of maintenance-free operation. *Directional operation* and *delayed circuit response* provide uniform turn-on, protection against accidental turn-off; *built-in expulsion-type arrestor* protects control against surges and lightning; *broad area hermetically sealed CdS cell* is pre-aged and 100% inspected against rigid specifications; *circuit design conservatively derates* all components; *twistlock plug, base dimensions and sealing means* conform to EEI-NEMA standard for twistlock adaptations; all Series 6600A controls are *unconditionally guaranteed for two years.*

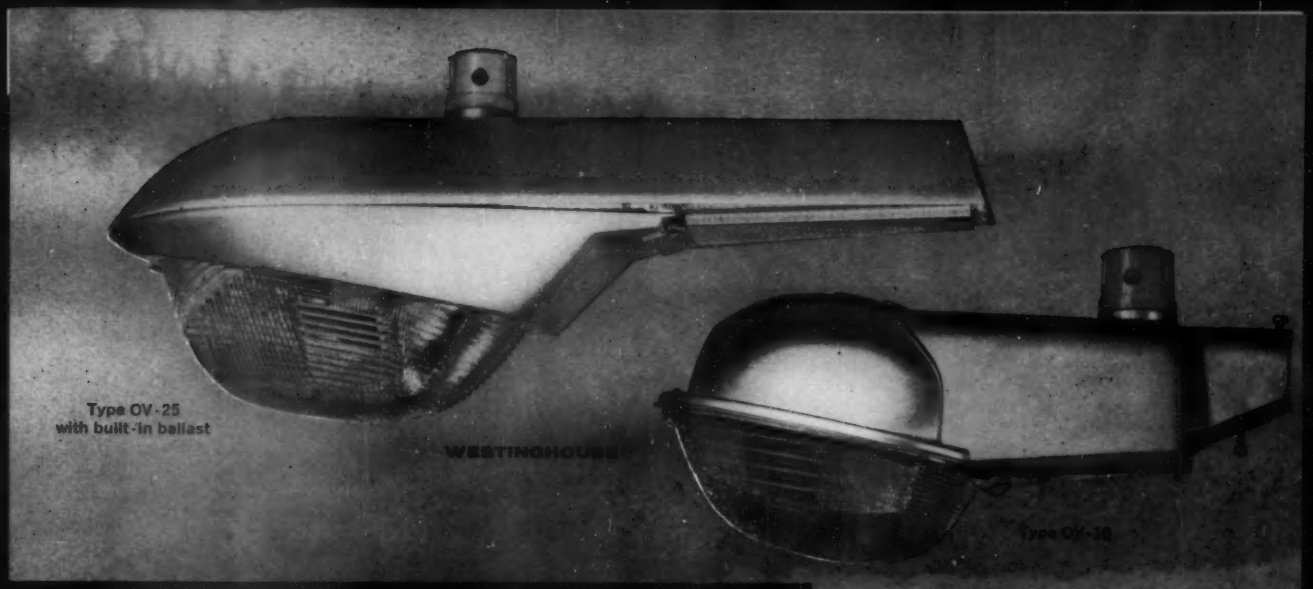
For complete descriptive details, write for the 8-page Detailed Technical Bulletin, no. FP-830. The Fisher-Pierce Co., **94** *Pearl St., So. Braintree 85, Mass.*

FP

FISHER PIERCE

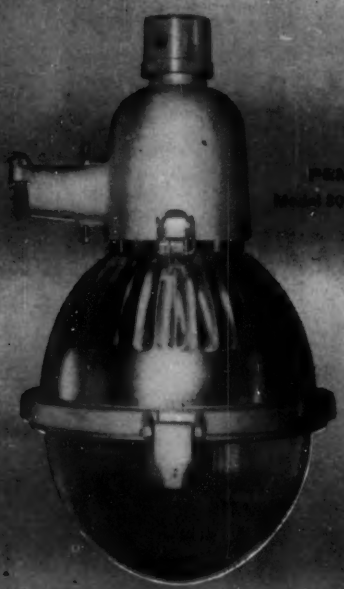
PHOTOELECTRIC LIGHTING CONTROLS

AN AFFILIATE OF SIGMA INSTRUMENTS, INC.


Type OV-25
with built-in ballast
WESTINGHOUSE
Type OV-10

Model 6600A
Actual Size

WHEELER
Crescent Luminaire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JOSLYN
Model J152278C

Build a real future for your water department with the new

Read-o-Matic*

a REVOLUTIONARY product.... for a totally new method of reading

Now your water department can look to a future of increased efficiency and economy — through the Badger Read-o-Matic, industry's first *practical* outdoor register.

With this revolutionary new outdoor register, you'll play a major role in community progress . . . by providing consistently better water department operation and service to *every* customer . . . starting with these *immediate* benefits:

BOOSTS WATER DEPARTMENT NET REVENUE

Eliminated: meterman recalls, "read-it-yourself" cards, estimated water bills. Result: reduced reading costs . . . and greater savings because of simplified department accounting and operation.

100% METER READING IN HALF THE TIME — AND NO WASTED CALLS

The Badger Read-o-Matic overcomes the chief problem of indoor reading: depending on the customer to be home. Instead, a meterman can complete his reading route in half the time it used to take by the old method — because the register is **outdoors** and always available.

BETTER SERVICE AND CUSTOMER GOOD WILL

Because the Badger Read-o-Matic is accessible to the meterman at all times, the customer will never be inconvenienced again. Your meter records are always up to date; the customer's meter bills will always be accurate.

*Patents applied for in U. S. A. and foreign countries.

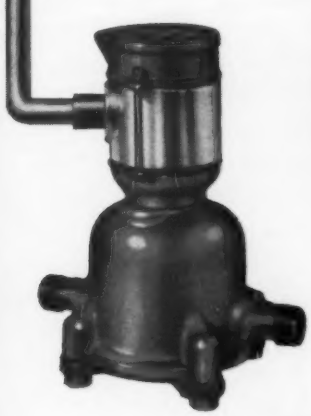
Dynamic New Idea!

Central reading stations

Glamorous *Mayfair,* Milwaukee, marks a new trend in ultra-modern suburban shopping centers. Its *metering system* — trend-setting, too.

A network of Badger Read-o-Matic registers serves Mayfair's more than 85 stores. Meters are located in the stores... connected to a central Read-o-Matic reading station for each section as shown in color on the aerial view (right). A typical panel of Read-o-Matic registers at Mayfair is shown below.

Meter reading — just a few minutes' work. And the Read-o-Matic registers are always accessible.



...Another in Badger Meter's big parade of new products for better water metering

Key to the Badger Read-o-Matic register — a self-powered generator that requires no outside source of power. It originates its own pulses that are recorded on the outdoor register. The register can be placed as far as one-half mile from the meter itself.

This revolutionary meter-register is another product of Badger's research devoted *exclusively* to the continuous improvement of water meter design, construction and performance.

Write us today. We'll send a free, colorful brochure with full details about the new Badger Read-o-Matic outdoor register.

Badger Water Meters

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● Reflector designed for high efficiency, uniform distribution with maximum usable light, minimum spill. ● Reflectors adjustable in 360° ● Fits all lamp types for varying amount of light as desired. ● Wide range of reflector lengths for continuous row installation. ● Easiest installation . . . wiring access at lamp holders . . . lampholders and mounts install individually . . . reflectors clamped in any desired position. ● Snap-on plastic cover available for added protection when fixture faces upward. ● Can be supplied with photo cell for automatic turn-on, turn-off. ● Proved in use on the Connecticut Turnpike.

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WHEELER-FULLERTON REPRESENTS THE MOST ADVANCED ENGINEERING IN STREET LIGHTING

What happens to city planning theory when . . .

A Greenbelt Town Grows Up

By K. W. BAUER, P.E.*
H. C. Webster & Son
Consulting Engineers
Milwaukee, Wis.

The number of times that the term "greenbelt" appears in the literature of planners and local government administrators is large and impressive. Since the interest exists, one can justify taking a close look at an actual greenbelt town. There are three such towns, all federally built as experiments in planning design during the middle 1930's. After somewhat more than 20 years of enlightened and progressive administration, it becomes worthwhile to see how one of these greenbelt towns has developed.

Original Design

Greendale, Wis., approximately 7 miles southwest of Milwaukee, originally was located on a site of approximately 3,400 acres. The actual town site utilized roughly 5% of this total; the remainder serving as an agricultural greenbelt encircling the "urban" development. On this town site were erected some 360 buildings containing 572 family units. These ranged from single-family dwellings to 6-family row houses. Rents were low, making no effort to meet any capital costs, but adequate to provide for operation and maintenance.

The little town had a community center consisting of a shopping area, school and community building, administration building, fire and police building, and public works building, all conveniently grouped. It had water and sewage purification plants and a central heating plant. The entire town was admirably planned to fit its site and conserve the natural beauty of the area.

No Pedestrian Fatality

The street pattern was functional; it separated arterial and service streets, and to a considerable extent, separated pedestrian ways from both. In the 20 years of Greendale's existence, there has been no pedestrian fatality.

The buildings, while diverse in form and placement, still possessed architectural unity. The finished town possessed a charm and a livability which few other communities can approach. The community became a village in 1933 with a council-manager form of government. Since the federal government owned the entire area, the village government was supported by negotiated federal payments in lieu of taxes.

The experiment suffered because of lack of interest on a national level. Moreover, some found it a convenient target for attack as a socialistic venture. Consequently, the federal government decided to dispose of the village in 1952. Several schemes were considered including one involving financing by and attachment to the central city of Milwaukee. It was finally decided, however, to sell the existing houses to individual purchasers giving first option to current tenants. Disposition of the shopping center, administration building, and the vacant greenbelt land presented a more difficult problem. Alarmed at the interest shown by several large national real estate speculators in the greenbelt tracts, three large Milwaukee corporations decided to join forces and purchase the land. These organizations, the Allis - Chalmers Manufacturing Company, the Kearney and Trecker Corporation, and the Boston Store, formed the Milwaukee Community Development Corporation, "MCDC," with the expressed intention of conserving the improved property and of sponsoring the planned expansion of the original townsite in as much harmony with the original greenbelt concept as the economics of private enterprise would permit.

In 1953 MCDC purchased all of the vacant greenbelt land—2,300 acres—together with the shopping center and administration building, ending federal ownership and interest in Greendale. MCDC engaged a permanent planning staff headed by Mr. L. A. Riegel, and retained Elbert Peets, one of the original greenbelt town planners, to prepare,

* Since writing this article, Mr. Bauer has joined the Planning Commission, Madison, Wis., as Chief of Current Planning.

What is "positive" fire alarm protection?

An outstanding example of "positive" fire alarm protection is the $112,000 Gamewell System modernization completed about a year ago in Chester, Pa. This up-to-the-minute system has greatly increased the fire department's operating efficiency and completely eliminated costly false alarms due to equipment failures. In addition, maintenance has been greatly reduced.

There are 169 fire alarm boxes including Master Boxes within three large industrial plants. Alarms are automatically transmitted to fire and police headquarters and five engine houses. Advanced design assures reliability. Even when outside wiring is "knocked out" by hurricanes, snowstorms, etc., system's "pull" boxes still transmit alarms to headquarters.

Mr. Garry Boden, Director of Public Safety (shown right above with Mr. James Gorbey, Director of Accounts and Finances), feels that Chester has one of the nation's most modern fire alarm systems. Make certain *your* community is as well protected. Ask for a Gamewell Survey. No obligation. Write The Gamewell Company, Dept. 3E, Newton Upper Falls 64, Massachusetts.

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Revere Urban-Lites provide economical lighting for secondary streets. Splice box in neck makes wiring easy, U-bolt and leveling screws permit accurate, permanent positioning.

REVERE PLANNED STREET LIGHTING

Revere Urban-Lite makes efficient use of 100, 175, or 250-watt mercury lamps for uniform light where lower intensity light is adequate.

The Revere Urban-Lite was especially designed to solve a specific problem — to provide lightly-traveled residential streets with uniform lighting at lowest possible cost. It is smart in appearance, and uses horizontal burning mercury or incandescent lamps for economy and efficiency where high intensity lighting is not required. It is also available wired for plug-in type individual photo-electric control.

Other street lighting problems call for different types of equipment. For every problem, Revere offers high quality lighting fixtures that are specifically designed to provide the most efficient, economical solution. Write for a Revere Street Lighting Catalog.

Other luminaires from Revere's complete line

For heavily-traveled streets —Revere Endoval luminaire uses 11,000 or 21,000 lumen mercury lamps for high-intensity illumination. Reversible slip-fitter for mounting horizontally or with 10° tilt.

For moderately-traveled streets —Revere Star-Lux luminaire uses up to 10,000 lumen incandescent lamps, or 250 to 400-watt mercury lamps to meet varied needs.

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in cooperation with the Village Plan Commission, an overall plan for the development of the village, as well as to administer development policies. The plan, unlike that for many suburbs in the metropolitan area, attempts to provide a socially and economically balanced community by allocating land to both high and low cost single and multiple family residence use. Three single-family residence areas are provided by the plan with minimum lot areas of 7,140, 8,400 and 30,000 square feet. Homes range in price from $15,000 to $40,000. Multiple family residence areas call for minimum lot areas of 2,000 square feet per family. However, these multiple family areas are interspersed among the single-family areas to achieve an overall gross density of about 10 persons per acre. The overall gross density of the original town site was, by comparison, approximately 14 persons per acre.

In addition, land has been allocated to light industrial as well as commercial use, a departure from the original greenbelt concept, in order to strengthen the community's tax base. To date a large research laboratory and plastics molding plant have been constructed in the village, and a $500,000 addition to the original shopping center has been completed.

Street Pattern

The new plan provides a street pattern which, like that of the original, is functional. It provides four types of streets:

- **Regional trafficways — which range from 90 to 200 feet wide and are fully controlled as to access.**
- **Village trafficways — which range from 80 to 100 feet wide and also are fully controlled as to access. No lots front on these streets and generally no utilities are installed in them.**
- **Collector streets—which feed to village trafficways and are all 60 feet wide.**
- **Land access streets — which range from 40 to 50 feet wide and generally are designed as loop streets.**

All streets are carefully adjusted to the topography—the final location being based upon fine grading studies; planting screens are provided along all regional and village trafficways making them in effect parkways.

The new plan allocates approximately 1,000 acres, or 38% of the total, to park and parkway pur-

TABULATING TIME

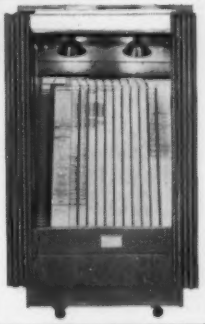
for better elections

With the Shoup Voting Machine, the procedure of tabulation and coordinating results is so simple that returns from whole cities can be published within an hour or two after the polls close. This is because only the Shoup Voting Machine provides instantaneous results by candidates' names directly on the face of the machine.

In Orlando, Florida, for example, returns that previously took 2½ days for clerks and inspectors to tabulate were in the registration office within 2 hours. And other communities have had equally impressive experiences.

Obviously this represents substantial savings in time spent by election officials. It also facilitates the work of newspapers, radio-TV, and other parties interested in election outcomes in getting the results to the public.

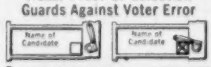
Shoup Voting Machines are designed to fill every ballot requirement and comply with the election laws of all states. They are the only voting machines that duplicate the traditional vertical paper ballot with which voters are familiar. They are fool-proof and fraud-proof, reduce voting costs, and insure greater speed and accuracy of results. Impartial surveys prove the Shoup Voting Machine superior . . . more perfectly designed and constructed to meet the requirements of the voting public. That's why more and more communities, from the smallest to the largest, are using Shoup Voting Machines for better elections.



The ABC's of Superiority...

A. THE VERTICAL TYPE BALLOT (see illustration)

B. THE MOVING X MARK — Visual Proof of Selection — Guards Against Voter Error



C. INSTANTANEOUS RESULTS BY CANDIDATE'S NAME Directly on the Face of the Machine No Decoding Necessary

28 States Already Use Shoup Voting Machines

SHOUP

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the voting machine that looks like a ballot

poses. It sets aside another 135 acres for school and church sites. The park areas are located to preserve such points of natural beauty as streams, stands of fine trees, or high points offering exceptional vistas.

The most noteworthy thing about this plan, however, is the manner in which it is being implemented. Whenever MCDC and the Village Plan Commission decide that an integrated area (modified neighborhood unit) is ready for development, a development contract is negotiated with a local builder. The decision as to development timing is based upon such community considerations as school, utility, fire and police protection needs and capacities, and the effect on the village economy as well as on consideration of real estate market factors. MCDC agrees to sell the land for a stipulated price; the purchaser agrees to subdivide and improve the site and build a home on every lot within three years, all within the general plan and under MCDC supervision and control. MCDC reserves the right to approve all site improvements, all building plans, and all building costs and prices. Site improvements required include sanitary sewers, storm sewers and water mains, all sizes according to a general system plan, service laterals from the mains to the lot lines, concrete curb and gutter, walks, an intermediate type of bituminous pavement of width indicated by the general plan, and planting screens along regional and village traffic streets.

In addition, MCDC requires that deed restrictions be drawn for each integrated area, regulating such matters as the size of front, side and rear yards; minimum lot and building sizes; location, size and type of fences; and architectural control over all new construction. The deed restrictions are enforceable by MCDC for a period of 3 years, after which enforcement is turned over to the neighborhood Home Owners Associations established by deed restrictions.

Rapid Development

Development has been rapid. During a period when residential construction dropped 8% in the metropolitan area, Greendale's activity rose 40%, indicating that the distinctive characteristics of the village are attractive to the public. Village population has increased from 2,750 in 1959 to 4,060 in 1957. Platting is expected to continue at the rate of about 300 lots per year until Greendale is completely developed, at which time MCDC will be dissolved.

The manner in which the present development of Greendale is being planned and controlled is certainly impressive, particularly as compared to the more usual city planning efforts of other communities. Its success unquestionably lies in the fact that one corporate body controls all of the undeveloped land surrounding the village, and that this body chooses to exercise this control with such enlightened self interest that it becomes, in effect, a quasi-public body. The manner in which the physical development of a community can be shaped to the aims of the planner through such control, make such usual planning devices as official map, zoning and subdivision control ordinances seem crude by comparison. The MCDC allows land to be developed in sequence, so that entire integrated areas can be completely developed over a short period of time, thus providing the community with a maximum tax base and avoiding

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Only the NEW DIETZ
REVOLVING LIGHT gives you all these advantages
• Greater lens area—complete 360° visibility over greater distances
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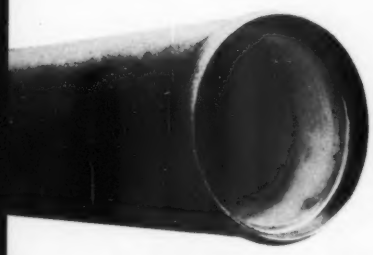

CONSERVATIVE DESIGN is one of the important reasons why American Concrete Cylinder Pipe has gained such high acceptance by engineers and water works officials in the west. The composite design of the pipe is based on a factor of safety of 2¼ at the elastic limit of the pipe. American Concrete Cylinder Pipe will safely withstand sudden and severe increases of pressure – surge and water hammer – or the occasional concentrated external loadings met under unusual field conditions.

The *composite* action of the mortar lined steel cylinder, circumferential rod reinforcement and external mortar coating accounts for the consistently successful performance record of this type of pipe. The use of a minimum of 25% to, under certain conditions, 50% or more of the total required cross-sectional steel area as tension-wound circumferential reinforcement substantially increases the pipe's external supporting strength over that which would be obtained if all of the required steel area were placed in the cylinder alone.

Take advantage of American Concrete Cylinder Pipe's greater inherent strength through more effective use of materials – see an American sales engineer when planning your next project.

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troublesome pockets of vacant land. It provides for orderly growth following the logical extension of existing utilities, and permits the rate of development to be geared to school and other community service capacities, as well as to market demands. It goes beyond the limitations of a zoning ordinance in that it allows the planner to study each potential purchaser of land in light of the community plan, and to reject those purchasers who do not, for any reason, fit the overall pattern. It permits a degree of control over the site improvements which is difficult to obtain through a subdivision control ordinance, and affords complete architectural control so that pleasing overall effects can be obtained. Finally, it presents a positive method, through deed restrictions based upon a comprehensive plan, of maintaining the physical characteristics of the community regardless of future changes in the form or attitude of government.

Greenbelt Not Maintained

Some planners will be disappointed to learn that despite the quality and degree of control, the new plan for Greendale does not provide for the retention of a permanent greenbelt around the village, although it does approximate such a greenbelt through the use of park land along the southern and western boundaries of the Village. This is, indeed, the only serious departure the new plan makes from the old greenbelt concepts. Such a greenbelt would be highly desirable to insulate the village from development in surrounding communities, thereby limiting its size and helping to retain its characteristics as a distinctive community. However, the departure is understandable in that a private planning body, such as MCDC, must, in order to exist at all, meet economic reality. In spite of this one weakness, the success of the Greendale planning efforts should warrant further consideration and study of the techniques involved.

BRUSH DISPOSAL CREWS OPERATE FULL TIME WITH THE TROUBLE-FREE

FITCHBURG CHIPPER

CITY

This low-maintenance Fitchburg Chipper is disposing of brush in the City of Holland, Michigan.

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"Our Fitchburg Chipper consolidates the bulk, thereby lessening dumping operations. It requires minimum maintenance and manpower."

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"We have never had one (Fitchburg Chipper) wear out or give excessive trouble." Chipper still operating after 9 years.

Davey Tree Surgery Co. Ltd.
San Francisco, Calif.

UTILITY

"Our men have been particularly pleased with their Fitchburg Chippers . . . they are rugged and reliable."

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When crews go out to trim trees, it's costly to have machine breakdown. That's why foresters, park superintendents, line clearing supervisors, and tree companies prefer the Fitchburg Chipper. This well-engineered brush chipper is designed for busy, trouble-free service, no down-time.

The rugged Fitchburg Chipper requires little upkeep, and has low maintenance cost. It's economical to operate. And crews like the exclusive spring-activated feed plate which adjusts itself automatically to any size brush up to its rated capacity. This patented feed-plate provides protection from damage from foreign materials, makes for greater crew safety.

The Fitchburg Chipper is engineered to work fast, safely, and to be always "ready to go." It's the chipper which won't slow down your crews, lets you plan their work intelligently—saves you time and money.

Please send in the coupon for more information, and for copies of articles on chipping which appeared recently in leading publications. These feature articles describe five methods of brush disposal and ten new ways to utilize "by-product" chips. Send for your copies, they are well worthwhile.

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Dept. AC-109, Fitchburg, Massachusetts

☐ Please send me important articles which describe 5 methods of brush disposal, and 10 new ways to utilize brush chips.

☐ Please send more information on Fitchburg Chippers.

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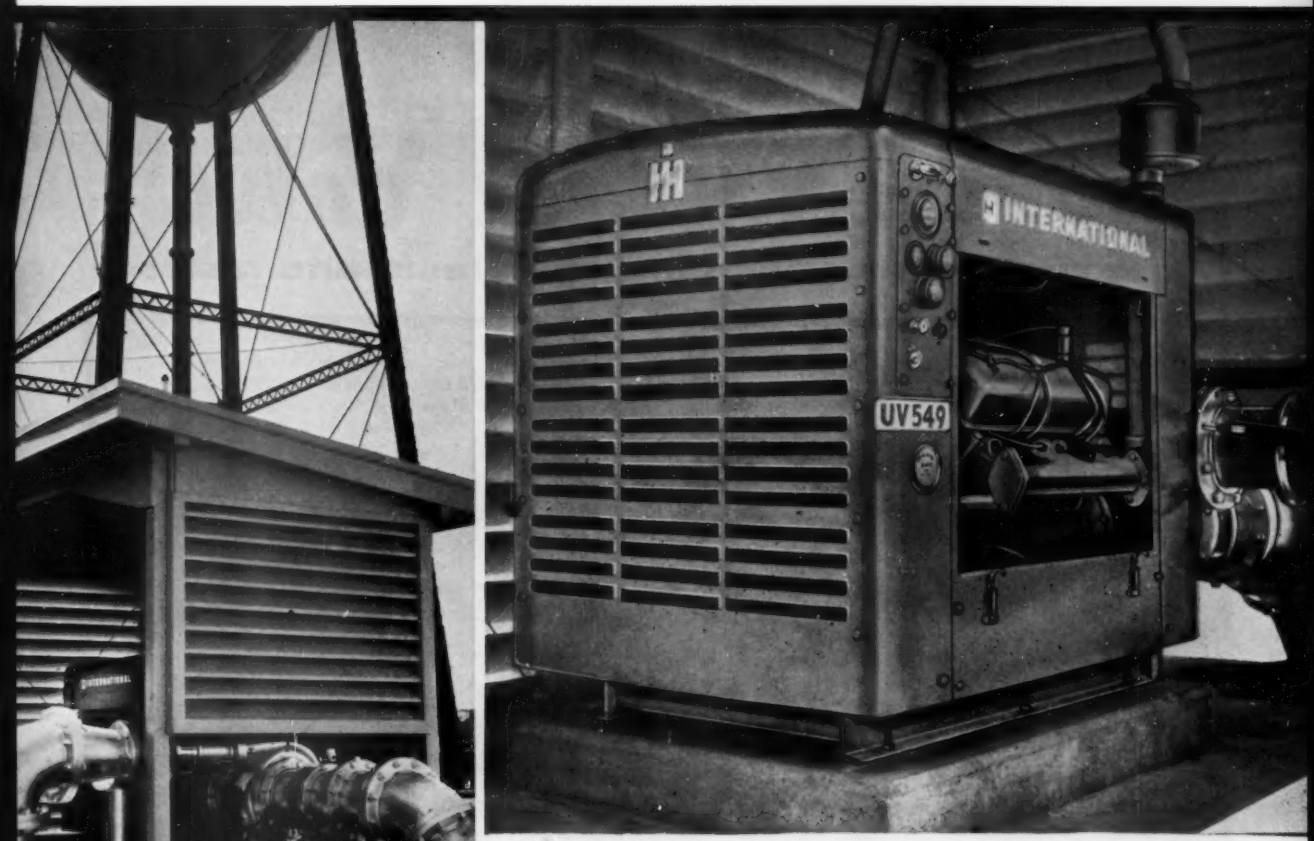
New Voting Machinery

Ballots in the form of punch cards may now be used in Ohio, the Council of State Governments indicates. Voters would use a machine that punches a hole instead of marking an X. Ballots would be tabulated at a central counting station.

Pipe Co. (Subsidiary) P.O. Box 12127 — Alpine 2-7566



LOW COST INSURANCE against complete power failure is provided by this International UV-549-powered 8-in. standby pump on the water supply system for downtown Stockton, California.

How water supply for downtown Stockton gets dual protection for emergencies

The business section of Stockton, Calif., will receive water under adequate pressure in any emergency because of dual protection provided by the California Water Service Co.

Under normal conditions, the water company supplies water to 120,000 people of Stockton and vicinity from 51 pumping stations, each equipped with two to six wells. All wells pump into storage reservoirs and standpipe pressure tanks. Electric power comes from duplicating lines, so if one fails, a switch is made to the other line so that pumping continues.

The water supply of the downtown district is further protected against complete power failure by an 8-in. Berkeley centrifugal standby pump powered by an International 8-cyl. UV-549 power unit. The standby unit draws water from the adjacent 2,000,000-gal. reservoir and forces it into the main water system. On test, the pumping unit maintained 55 psi while pumping 3,000 gpm against a head of 132 feet of water.

When your city needs dependable, low cost power for standby pumps, generator sets, or for repowering construction equipment, check your International Power Unit Distributor or Dealer. He sells power ranging from 16.5 to 385 max. hp in 32 carbureted and diesel models with one common feature—fastest payback power.

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A COMPLETE POWER PACKAGE: Crawler and Wheel Tractors... Self-Propelled Scrapers and Bottom-Dump Wagons... Crawler and Rubber-Tired Loaders... Off-Highway Haulers... Diesel and Carbureted Engines... Motor Trucks... Farm Tractors and Equipment.

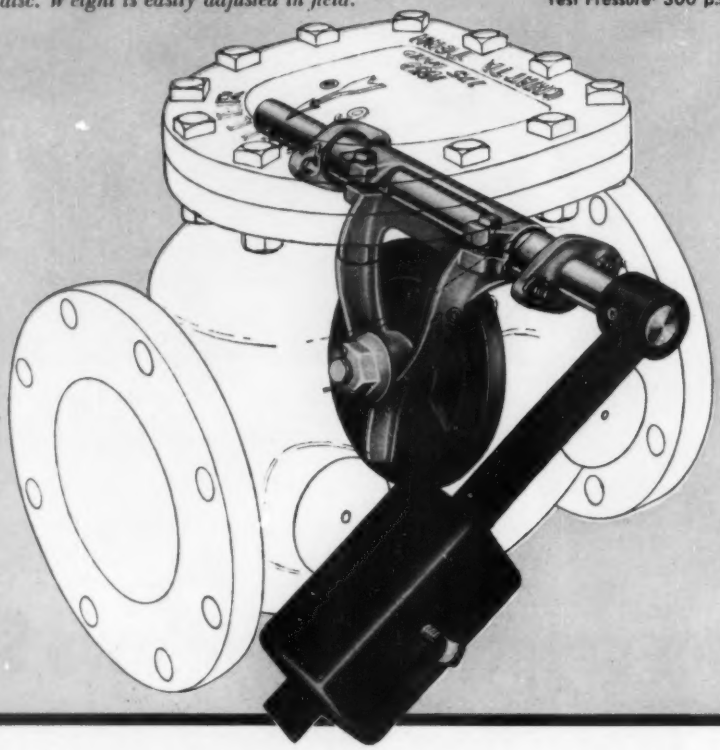
MUELLER® Check Valves

heavy duty disc assembly that lasts and lasts!

Lever and Weight Type

. . . ideal for use in pump suction or discharge lines to cushion and reduce slamming and hammering. Lever may be positioned to speed up or slow down closing of disc. Weight is easily adjusted in field.

Iron Body — Fully Bronze Mounted
Bronze Seat Ring
Bronze Disc Ring or Rubber Faced Disc
Flanged, Screwed or Hub Ends
Working Pressure: 175 p.s.i.
Test Pressure· 300 p.s.i.



All working parts of these new Mueller Swing Type Check Valves are heavily made to assure long service life and dependable operation *without maintenance.*

A heavy stainless steel hinge pin is used on all lever and weight type (shown) and lever and spring type check valves. This pin is extended through the hinge plugs to permit the lever to be used on either side of the body. An "O" ring on the plug prevents leakage around the pin.

The plain type, without lever, weight or spring, uses a new combined hinge pin and plug which is securely and accurately held to the body by studs and nuts. An "O" ring positively seals the plug to prevent leakage.

Large, wear-resistant bearings and a full-width clapper arm hinge, used in all types, accurately and rigidly align the disc to eliminate chatter and vibration.

These new, heavy duty check valves have been specifically designed for repeated opening and closing applications in water works pumping stations, water filtration plants, sewage treatment plants and general industrial plants. They are suitable for horizontal or vertical installation on water or oil lines.

Write for specifications.

The many exclusive features of these new check valves are typical of the attemtion to detail in research, design and engineering that becomes a part of every Mueller product.

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Factories at: Decatur, Chattanooga, Los Angeles; In Canada: Mueller, Limited, Sarnia, Ontario

They Said It Couldn't Be Done

Morristown, N. J., is currently getting a semi-publicly-supported housing project that falls into the "they said it couldn't be done" category. The new Cory Road Development will provide neat, single-family homes, built to an attractive city plan, primarily for families displaced from a slum section of the town known as The Hollow.

These homes will be built on land whose development and improvement cost $100,000, shared by Morristown and the builder. The builder will clear and grade the site, install curbs, sidewalk and fencing. Morristown will build the streets and install the sewers and water lines. The city sold the land to the builder at a nominal price of $10 per lot. A typical lot measures 65 x 100 feet.

Each house will have two bedrooms, one bath, expansion attic, gas warm-air heating system, gas water heater (but no kitchen appliances), and a full basement.

Four variations of the basic plan and three different exterior wall treatments will help prevent monotony of design. Several asphalt shingle roof colors will be used with varied exterior paint colors to individualize the houses further.

Thick insulation, 6 inches of mineral wool in the ceiling and 3 inches in the sidewalls, is available at the purchaser's option; otherwise, insulation will meet FHA minimum standards. The thick insulation reduces heating costs, important for low-income home owners.

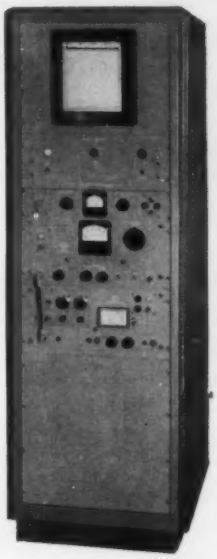
The homes will cost $10,000 each, a price that many builders claim is too low to provide well-built houses in the northeast. There will be 48 homes on the 12-acre wooded site located a mile from the heart of Morristown.

First priority for these new homes will go to families displaced from the slum area. Second priority will go to other Morristown families, and the lowest to applications from people outside the city.

The buildings are being constructed under Section 221 of the Federal Housing Act. Under its provisions, families qualifying can obtain 30-year FHA-insured mortgages for the entire purchase price. Only the closing costs must be paid in cash. Currently, more than 80 applications have been received for the Cory Road homes. About half are from first-priority families.

EDWARD J. EHLERS, *City Clerk*
Morristown, N. J.

VICTOREEN RADIOACTIVITY WATER MONITOR



protects city water supply systems against dangerous radioactivity

Compact new Victoreen Model 900-44 Scintillation Flow Monitor. Similar equipment also available for monitoring waste and sewage radioactivity.

- Continuously monitors beta and gamma levels
- Determines specific isotope by spectrum analysis
- Gross activity continuously recorded for legal records
- Built-in visual-aural alarm gives warning when activity reaches preset level
- Calibration and operation automatically checked every 2 hours

The new Victoreen Scintillation Flow Monitor provides automatic, unattended protection of a city's inhabitants against unnecessary exposure to hazardous radioactivity caused by fallout, nuclear disposal, radioactive rain or other contaminants in a city water system. Full technical details on this important subject are available without obligation. A-841A

Write for your free copy of new 4-page bulletin Form 3038-9 "Victoreen Scintillation Flow Water Monitor."

The Victoreen Instrument Company

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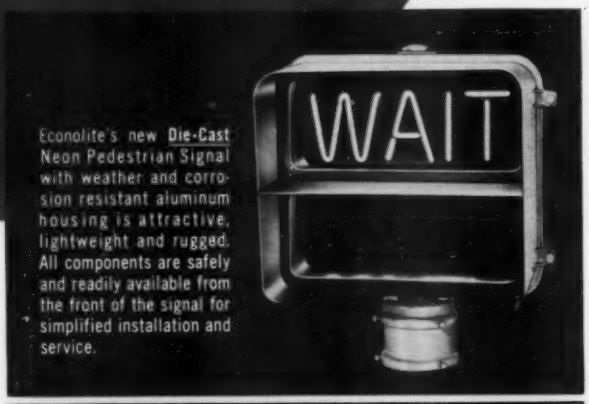

Econolite's new **Die-Cast** Neon Pedestrian Signal with weather and corrosion resistant aluminum housing is attractive, lightweight and rugged. All components are safely and readily available from the front of the signal for simplified installation and service.

Econolite's new **Incandescent** Pedestrian Signal offers advanced mechanical design and improved legibility.

Write for further information.

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Good Relations In Atlanta Buying

By ERNEST J. BREWER
Purchasing Agent, Atlanta, Ga.

Ernest J. Brewer

In our 1958 Annual Report we departed from the usual type of purchasing department statistical information and in its place we endeavored to give a picture of our responsibilities and duties, and our appreciation of commendation.

We feel that the job cannot be done well without good public relations. This means not merely a good relationship with the general public, though this is very important. But it has to be coupled with a good relationship with those of our own department and to spread from there to all departments of the city government. No amount of public relations can make a bad policy work but without public relations the best policy and the best performance may fail to win understanding or support from the people for whom it is intended.

One of the most effective steps we have taken is to furnish interested salesmen, representatives and bidders with copies of the bid tabulation sheets. We use a rubber stamp to place the following note on certain types of bids—"AS A NEW SERVICE TO YOU—OUR BIDDERS—we will be glad to mail you a complete tabulation of bids. If you wish to receive a copy please check here ( ). Kindly do not telephone for this information." This is not only quite helpful to those who bid, but it is also a time saver for this office, in that it means fewer telephone calls seeking this information. We have received a number of letters of commendation for this service.

An intelligent, experienced salesman, who knows his line, is a fertile source of up-to-date knowledge on what is going on in the industry. Some of his suggestions can be very profitable to the City Purchasing Department. While we have no quarrel with the busy purchasing agent who sets up certain ground rules as to when salesmen shall call, we ourselves keep "open house," and it works, and works satisfactorily. We realize that these men are a valuable source of information and therefore we cultivate them and take full advantage of their experience and help. We feel that they should be seen promptly and not left to cool their heels while we attend to matters that could wait until a later time.

One of the auditors, while making his routine check of the department, had this to say: "Several things impress me in regard to this department, but in particular I note the courteous and prompt manner in which salesmen are received, and how they seem to have a spirit of freedom in moving to the desk of the proper buyer without being unnecessarily detained."

Savings

We take annual bids on automobile and truck tires covering the city's requirements, from large tractor tires to small tires for mowers. The low bid for 1958 was 15% off the state list prices, plus 2% cash discount.

An emergency request came in for some house paint and telephone bids were taken by one of the buyers. Not being satisfied with the low bid, he held the request until a bid form could be mailed to the bidder and returned to this office. The saving was approximately $50. This proves at least two things: All is not emergency that is so marked, and a Bid Form has sometimes been known to have a salutary effect upon a bidder.

On another item we have been customarily receiving identical bids from four or five vendors from year to year to cover our requirements, but the assistant purchasing agent secured an additional distributor interested in bidding on this item and the result was a low bid, resulting in a saving for the year of approximately $1,400.

At our request, the city attorney approved the use of a signature stamp in place of the purchasing agent's personal signature. He ruled

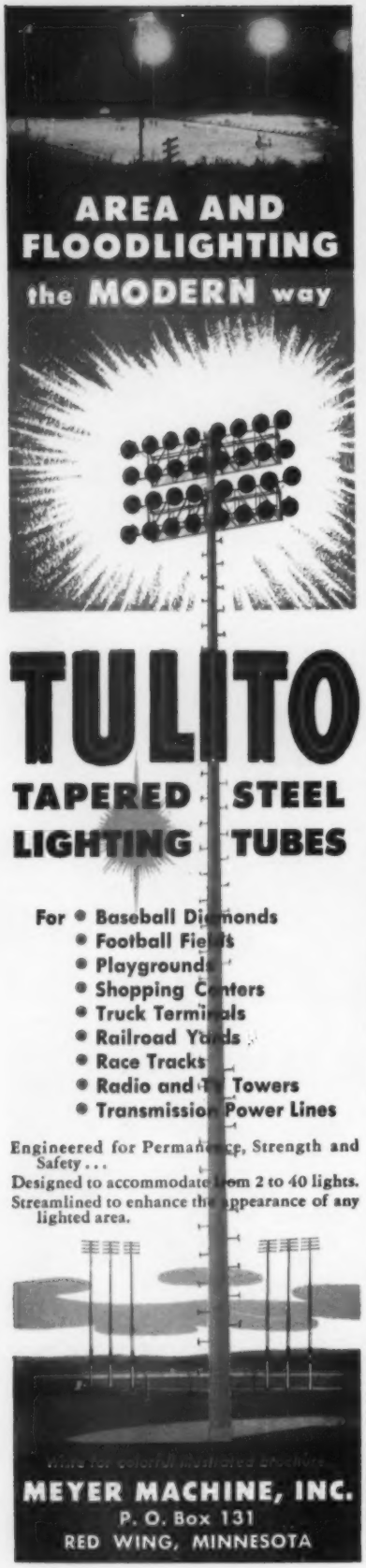
At least once a year Atlanta purchasing agent Ernest Brewer hits the news with a sharp crack at Atlantians' funnybones.

With full mien of dignity he submits the report of his department, pointing out that such items as 109,500 aspirin tablets, 3,900 pairs of used Army shorts and one Flexy Racer were bought by the city.

The novelties and unusual details of big-city buying are always worth a story and a chuckle.

But behind this light report is a story of spending $21 million of Atlanta taxpayers' money and of a man who has cities over the nation looking to Atlanta for tips on better buying.

—Ed Hughes in The Atlanta Journal for April 16, 1959



that a facsimile stamp of the Purchasing Agent's signature could be used and this saves considerable time.

The Comptroller's Office has informed us that over $31,000 was saved last year by taking advantage of the cash discount. This is due in no small part to the fact that our buyers, as they take bids from day to day, constantly ask what, if any cash discount is allowed. When we compare this with the $75,000 that New York City saves every year, it looks very good indeed for that great city spends many times over the amount of purchases made by the City of Atlanta.

In March of the year, at the invitation of Paul Weir, general manager of the water works, I met with Mr. Weir and the members of his staff for the purpose of discussing the writing of specifications. It was not expected that I would be in a position to offer technical advice but to offer suggestions which would help to improve specification writing. This would prevent justifiable criticism from our bidders.

Our bid division, during 1958, mailed a total of 14,170 bid requests. In an effort to make it almost impossible for us to be justifiably criticized by a bidder who claims he did not receive the bid form, we developed and have been using with remarkable success our own nine-part form. The individual bid forms with the names of the bidders thereon are placed in window envelopes and mailed. During 1958 we received only three complaints from bidders who alleged that they did not receive a bid form.

During 1958 we purchased 73 dump, pick-up, panel and heavy-duty trucks at a cost of $222,511 and 20 garbage trucks for $174,347. We purchased 1½ miles of chain link fence, much of which was to replace fence damaged by motorists on the expressway. A considerable amount of this expense was recovered from the offending parties by the construction department and the city attorney's staff. As a protection on the expressway system, we bought 2.1 miles of guard rail.

We measure our purchases of pipe by the mile: e.g., 21 miles of cast-iron water pipe; 4.1 miles of galvanized water pipe; 1.6 miles of steel water pipe; 8.1 miles of concrete sewer pipe; 3,300 feet of plastic pipe; and the largest amount of any purchase order written for the year was $649,489 for concrete pipe and fittings for a 42-inch water supply line. We also bought one Flexy Racer for inspecting the interior of 36-inch water mains.

All Rochester's Buses Have Two-Way Radio

The Rochester Transit Corporation has equipped its entire fleet of nearly 300 buses with two-way radios designed and built by Stromberg-Carlson, a division of General Dynamics Corporation, Rochester, N. Y. William A. Lang, President of the Rochester Transit Corporation, said that the two-way system "has a single objective—to give Rochester's bus passengers the best possible service.

"Radio should help us eliminate the bunching of buses headed in the same direction on the same line. That problem has haunted transit systems all over the country. Radio should help us surmount traffic tie-ups through the simple expedient of transmitting necessary instructions by radio. We also look to radio to help us replace buses which may become mechanically disabled on the road. In case of an accident on the bus our operators have a means at their fingertips to call for police, fire, medical attention. In the field of Civil Defense a fleet of nearly 300 radio-equipped vehicles is a potent force."

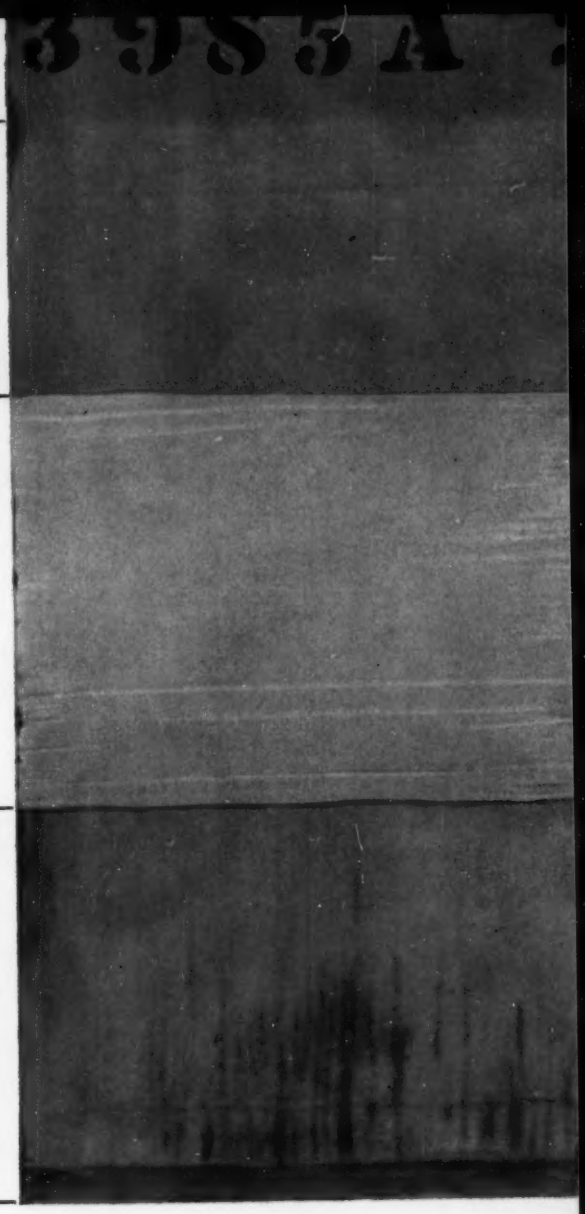
Actually, in order to handle the heavy volume of messages during rush hours, the R.T.C.'s new communication equipment includes two complete two-way radio systems. Each channel will serve half of the company's buses during periods of heavy use. At off-peak hours only one channel will be operated. Each mobile unit can be switched from one channel to the other by throwing a key.

Bus operator Kenneth Grieve receives instructions from the Rochester Transit Corp. dispatcher over new Stromberg-Carlson two-way radio.

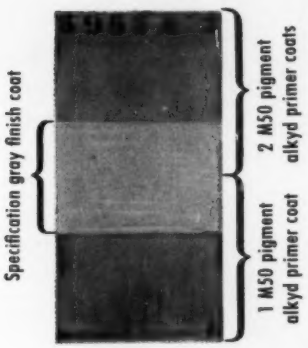
Area shaded from sun by wooden panel holder

After 9 years exposure, fading has barely begun to show in this 3-mil *M50* primer coat. Same type paint made with standard rust inhibiting pigment chalked and showed rusting in less than half this time.

Unshaded area



How test paints shown at right were applied



Exposed 9 years 45°S
Each coat 1.5 mils

1.5 mil *M50* primer coat is still in place, still actively resisting corrosion after 9 years. Same type paint made with conventional pigment almost completely disappeared in the same period.

Proof M50 pigment Defense in Depth paints deliver lasting weather resistance

Never before such durable metal protection for highway bridges, guard posts, railings, sign posts. And never before such attractive color choices.

Here you see how typical *M50* pigment primer coats weather 9 years exposure. The advantages of weather resistance like this in the primer coat of an anti-corrosive paint system cannot be overstressed. Long after weather has worked its way through intermediate and finish coats, primers made with *M50* basic lead silico chromate pigment* still provide excellent weather protection. Rust inhibiting action in the film continues unchecked. Even breaks in top coats traceable to damage or painting mishaps do little harm.

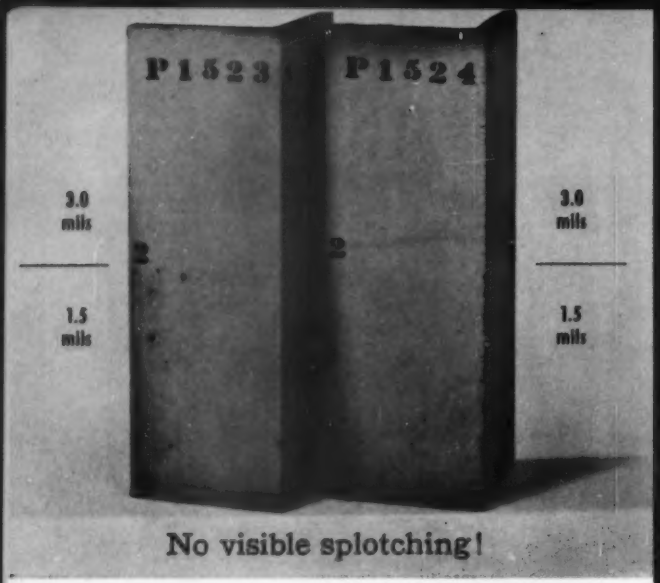
The excellent chalk resistance shown by *M50* pigment primers also pays off handsomely. When steel erection is delayed, repreparation of the steel is rarely needed. On-the-job spot priming is sharply reduced.

On the next page, see how typical *M50* finish paints perform in severe exposure tests.

*Registered trademark of

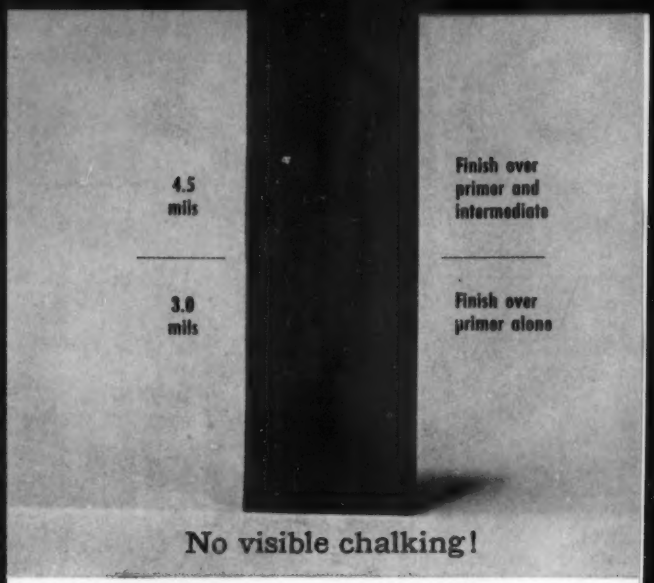
National Lead Company

General Offices: 111 Broadway, New York 6, N.Y.



No visible splotching!

Test angles above show how a typical *M50* pigment finish paint applied directly to steel (no primer or intermediate) withstands 4 years exposure in industrial atmospheres. Left, *M50* pigment finish applied on rusted surface with retained mill scale. Right, same paint applied on clean, sand-blasted surface.



No visible chalking!

This test angle demonstrates the excellent resistance to chalking or fading shown by *M50* pigment Defense in Depth paints. Paint has been exposed 2 years, 45°S in normal atmosphere. The insolubility and stability of *M50* fused lead chromate pigment contributes substantially to this performance.

Here are two performance plusses you can expect from M50 anti-corrosive finish paints exposed to weather

With *M50** pigment Defense in Depth paints, *lasting* weather resistance is obtained in *all* coats . . . not just intermediates and finishes. This is clearly brought out by exposure tests such as the ones shown on this and the preceding page.

Along with lasting 3-deep weather resistance, *M50* pigment anti-corrosive paint systems give you 3-deep rust inhibition and 3-deep color choice. Never before has it been possible to produce specification anti-corrosive paints with comparable performances that could be sold at current market levels.

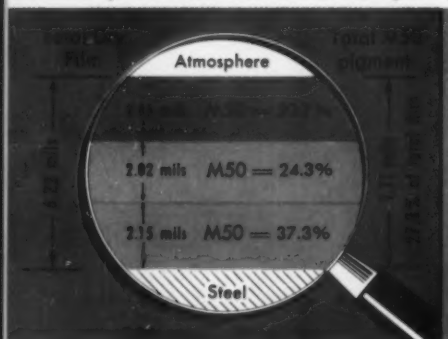
Now, with National Lead's *M50* pigment, most paint makers can make such paints.

National Lead is prepared to help your supplier formulate *M50* pigment paints and also: (1) show you *M50* pigment paint exposure test panels at its Sayville, L. I. Test Station; (2) send you a 24-page descriptive brochure, "Defense in Depth." (Mail coupon below); (3) provide technical aid in test applications; (4) help you develop suitable specifications for paints containing *M50* pigment.

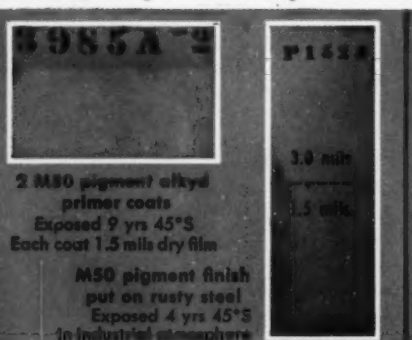
For M50 pigment paints themselves, contact your regular suppliers.

*National Lead Company trademark for a basic lead silico chromate pigment

Why M50 Defense in Depth paints give you metal protection beyond all former concepts



In every coat...rust inhibition! Fused lead chromate is noted for rust-inhibition. The *M50* pigment particle structure permits paint makers to include large proportions of lead chromate in all coats of anti-corrosive systems.


2 M50 pigment alkyd primer coats
Exposed 9 yrs 45°S
Each coat 1.5 mils dry film
M50 pigment finish put on rusty steel
Exposed 4 yrs 45°S

In every coat . . . weather resistance! *M50* pigment is insoluble in water and has the excellent tint retention properties of fused lead chromate. Unlike other rust inhibitors, it actually boosts weather resistance of paints.

In every coat...your choice of colors! *M50* pigment gets along well with most tinting pigments, permits paint makers a wide range of colors...not only in intermediates and finishes but in primer coats as well. Colors stay true.

M50 Defense in Depth

National Lead Company,
111 Broadway, New York 6, N. Y.

Gentlemen: Please send me your 24-page brochure, "Defense in Depth." Include color card of the six *M50* pigment paints you recommend for steel highway structures.

Name_____ Title_____

Firm or Dept_____

Address_____

City_____ State_____

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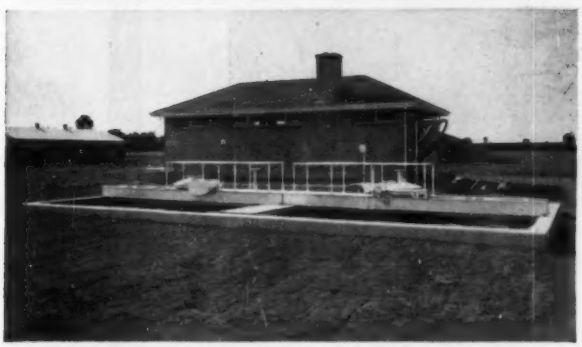
Modern installations provided for three communities moved by St. Lawrence Seaway project

Relocation of three Ontario communities, made necessary by construction of dams for the St. Lawrence Seaway, has brought one important benefit – the opportunity to build new and modern sewage treatment plants. In each case, basic equipment was manufactured and supplied by our Canadian Associate, Dorr-Oliver-Long Ltd.

D-O is a foremost supplier of sewage and water treatment equipment to meet the needs of any type of plant, regardless of size, kind of treatment desired or the local conditions involved. For details on the wide range of units available, write to Dorr-Oliver Incorporated, Stamford, Connecticut.

IROQUOIS, ONT. Equipment supplied: Clarifier, 30′ dia. x 12′ SWD; Digester, 25′ dia. x 18′ SWD; Sludge Pump. Design population: 5,000. Design flow to plant: 600,000 GPD.

Consultants:
Proctor & Redfern, Toronto, Ontario.



MORRISBURG, ONT. Equipment supplied: 2 Clarifiers, primary type, 20′ square x 7′ SWD. Design population: 5,000. Design flow: average 600,000 GPD, maximum 900,000 GPD.

Consultants:
James F. MacLaren & Associates, Toronto, Ontario.

LONG SAULT, ONT. Equipment supplied: 2 Clarifiers, primary and secondary, each 28′ dia. x 8′ 6″ SWD. Design population: 3,000. Design flow: average 360,000 GPD, maximum 605,000 GPD.

Consultants:
Marshall, Macklin & Monaghan, Don Mills, Ontario

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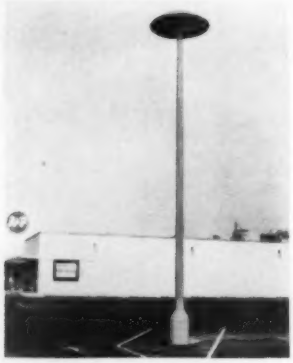

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The City Tells Its Story

Edited by **PAN DODD EIMON**
Consultant, Municipal Public Relations

Fredericktown, Mo. moves books, dirt, and city council!

Planned Progress Programs in Tri-State Towns Prove "Teamwork Can Build Brighter Futures"

Fredericktown, Mo., (population 5,000) held an open house recently to dedicate its new library. The library project is one of 20 or more which the city government and local civic groups—inspired by a Planned Progress Program—have underway.

In Planned Progress, Fredericktown is part of a three-state program in which city and county officials of 186 communities are working. The towns, all under 7,500 population, are in Missouri and parts of Iowa and Illinois. The programs were started in 1952 by the Union Electric Company and its affiliates, Missouri Edison and Missouri Power and Light Company. Participating towns are limited to the service area of these utilities.

In April of this year, when program figures for 1958 were complete, Planned Progress projects totalled 2,130. Projects covered every phase of community business and industry, recreation, beautification, education and culture, health and sanitation, fund-raising, charity and special events, public works and town facilities.

Fredericktown was one of several winners for its 1958 program, and is bidding for a 1959 top spot. On a nearby acreage, a group of volunteers is at work with borrowed bulldozers to clear the site for a community airport. The grass-runway port has cost the city only $200.

Why do the electric companies sponsor Planned Progress Programs? Because, Program Supervisor Van G. Sutliff, Jr. points out, "We . . . are in business in each of these towns and our future depends upon their future."

Mr. Sutliff is a member of Union Electric's six-man, full-time staff which assists towns in all phases of Planned Progress. Besides *advice and planning help,* the sponsors furnish: *how-to-do-it literature* (case histories of what other communities have done, project checklists, booklets on activating people and groups); *annual conferences* to which Planned Progress leaders come to report their successes and problems and to get and share solutions; *a yearly competition* with judges, prizes, and signs at the city limits of participating communities which say, "This is a Planned Progress Town."

Planned Progress has two facets. One is devoted to high school participants; the other to the total community.

High schoolers survey community assets and decide on one or two improvements which they feel have priority. Students team up in groups of four or five to appear before civic groups and explain their findings. The adult Planned Progress Council frequently follows the recommendations of the high school students although it is under no obligation to do so. The sponsors invite high school representatives to area dinners at the close of the school year where students explain their school activities to judges. Awards are gifts of equipment for winning schools or tours for participating students. (Next month, these MPR pages will detail how your city can put high school students to work and what their work can mean to the community.)

The adult phase of the program begins with the formation of a Planned Progress Council. The sparkplug group may be individual citizens, a single club, or people from several organizations. Every effort is made to set up a council which reaches into all parts of community life.

During the competitive year (Dec. 1 through Nov. 30), each town accomplishes as much as it possibly can. In October and November, judges visit participating towns and are shown what has been done. In December, the Planned Progress Councils submit a written report on their accomplishments. Winners are announced in January and cash awards are presented, usually at citizen dinners in the spring. The awards, in three groups, are $750 for one first-place town and $250 each for three second-place communities.

Planned Progress officially recognizes the realm of town government and makes no effort to usurp government's responsibilities. In Fredericktown, for instance, city officials had balked at the idea of spending tax money for a municipal tennis court. A youth group asked for one but the city felt that citizens, generally, were not in favor of the idea.

The Planned Progress Council encouraged a public opinion survey. Another organization made the survey and presented results to Mayor William Carmack and other officials. The survey showed citizens wanted —and were willing to have town money spent for—a tennis court. The city officials acted and the court will be built next spring. Meanwhile, the Planned Progress Council has turned over half its contest winnings to the Town of Fredericktown for the tennis court construction.

GIANT CROSS COUNTRY TEST...

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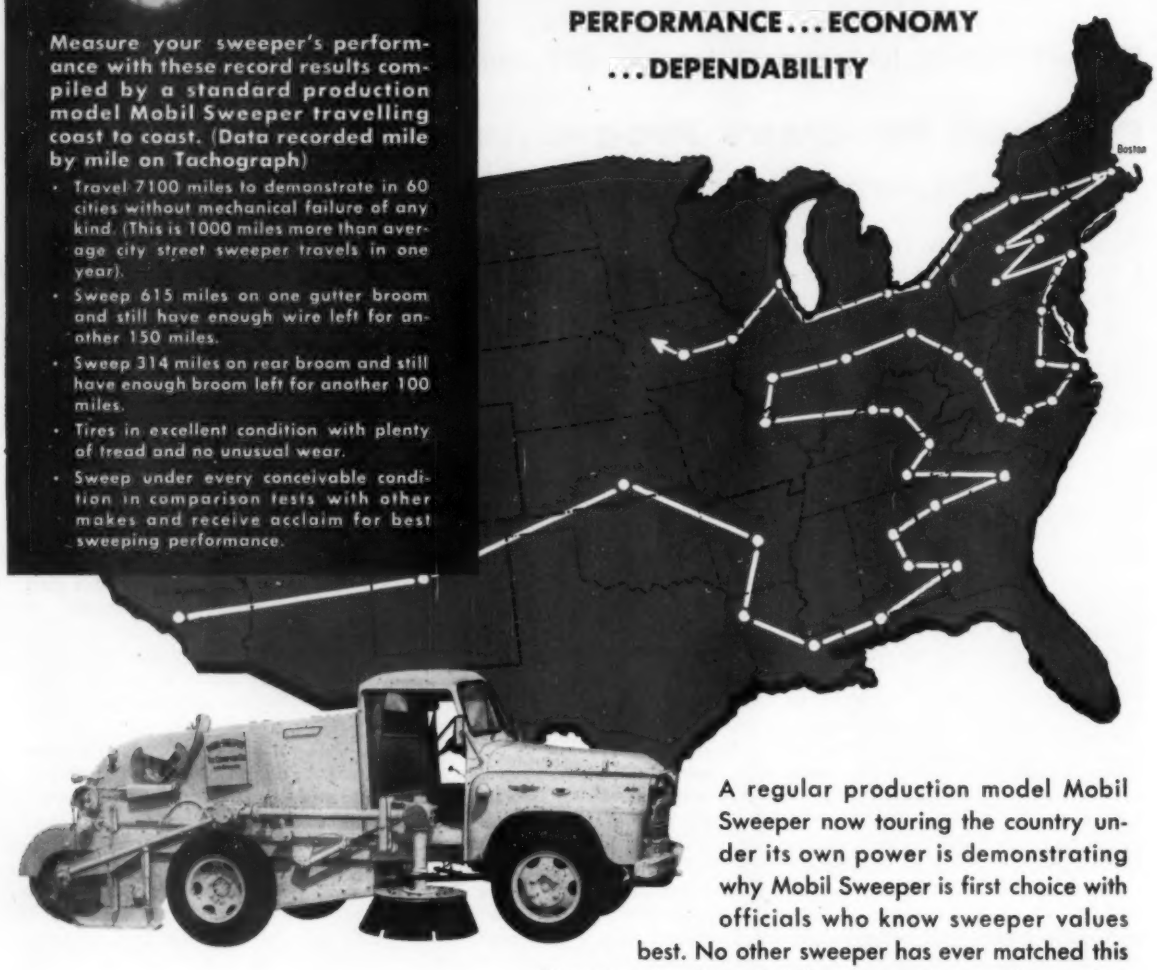
60 CITIES IN 69 DAYS

PROVES MOBIL SWEEPER PERFORMANCE...ECONOMY ...DEPENDABILITY

Measure your sweeper's performance with these record results compiled by a standard production model Mobil Sweeper travelling coast to coast. (Data recorded mile by mile on Tachograph)

- Travel 7100 miles to demonstrate in 60 cities without mechanical failure of any kind. (This is 1000 miles more than average city street sweeper travels in one year).
- Sweep 615 miles on one gutter broom and still have enough wire left for another 150 miles.
- Sweep 314 miles on rear broom and still have enough broom left for another 100 miles.
- Tires in excellent condition with plenty of tread and no unusual wear.
- Sweep under every conceivable condition in comparison tests with other makes and receive acclaim for best sweeping performance.



A regular production model Mobil Sweeper now touring the country under its own power is demonstrating why Mobil Sweeper is first choice with officials who know sweeper values best. No other sweeper has ever matched this all-out test for dependability, ruggedness and sweeping performance under every street condition. A Sangamo Tachograph has recorded performance mile by mile. Complete performance record will be on display at APWA Convention Seattle, Washington, when test is completed.

Again we say:

"MOBIL SWEEPER® offers the greatest sweeping value for your dollar."

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DIVISION OF THE CONVEYOR CO.

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Cleared lanes, wide enough for emergency traffic, took top priority once the flood-waters receded.

Six Inches of Ice

Private contractors take over street cleaning work when flood waters damage city equipment

By **ROBERT R. PERRY**
City Engineer
Meadville, Pa.

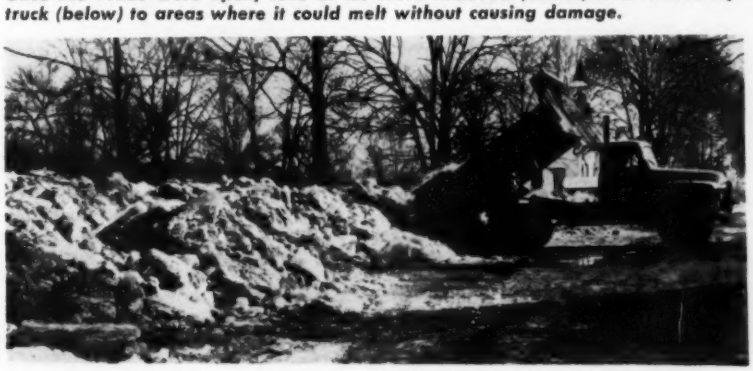
A dozer and front-end loader team up to load ice into 16-yard-capacity trucks.

Last winter Meadville, Pa. faced the job of removing six inches of ice from its streets and sidewalks. In this case there was no starting to work at a 2- or 3-inch depth, for the ice was left by the flood waters of French Creek. To make matters more difficult, the flood disabled about 50% of the street department's equipment. The department's garage floor lay under some three feet of water.

The trouble started on January 21, 1959 when the waters of French Creek cleared the banks, finally rising to 5.2 feet above flood stage, equalling the highest on record. At the crest of the flood, the temperature dropped sharply, going to near zero at night and seldom going above 20 during the day. Ice froze to a depth of six inches over most of the area and was left behind as the water receded.

Outside Help

Our first big clean-up problem was the removal of ice from the streets and sidewalks. With much of our own equipment out of order and the need for speed of the ut-



Once the roads were open, tons of ice were removed (above) and hauled by truck (below) to areas where it could melt without causing damage.

USED BY MEN WHO BUY EQUIPMENT FOR WHAT IT SAVES

Cost-Cutting Way to Clear Land

Cleaning up tree damage from wind, ice and snow storms or maintaining rights of way is a necessary expense for municipalities. But the faster you do it and the less manpower you have to put on the job, the more money you save. The best cost-cutting way is the Homelite way . . . with a Homelite One-man Chain Saw. Homelite Chain Saws have the power and practical attachments you need for lower-cost clearing. You can operate them safely . . . they're professional saws that even a novice can operate. You can fell 20" trees in as little as 18 seconds. You can buck, limb or trim trees easily in any position . . . right, left, up, down or upside down. What's more, Homelite offers a full line of attachments for every clearing job. Brush cutter makes quick work of removing brush and dense undergrowth . . . three times faster than hand tools. Clearing bar cleans out small trees and saplings quickly and easily. Send for our "full line" Bulletin L-1916 now, then ask for a demonstration.

Homelite chain saw dealers and Homelite factory branches are located throughout the country. Your nearest one is as close as your phone. Call or write for convincing demonstration or fast service in any way.

HOMELITE
ONE MAN CHAIN SAWS
PUMPS • GENERATORS • CHAIN SAWS • BLOWERS

HOMELITE • A DIVISION OF TEXTRON INC., 110 RIVERDALE AVE., PORT CHESTER, N. Y.
In Canada—Terry Machinery Co., Ltd.

most importance, we turned to two local contractors for assistance. The south end of town was turned over to the Kebert Construction Company and the Keystone Construction Company took over the Fifth Ward area.

Kebert used an International TD-14 with a bulldozer blade to first open all streets for emergency traffic. This was done as rapidly as the water receded. Next came the job of ice removal. Equipment utilized for this work consisted of the TD-14, a Galion #160 grader, a Michigan 175-A tractor shovel with 3-cubic-yard bucket, and three Mack 16-cubic-yard tandem trucks.

The Keystone Construction Company worked the Fifth Ward area in pretty much the same way using a Caterpillar No. 12 grader, a Caterpillar #955 highlift, one Hough Payloader, a Michigan 175 loader and six International 4-cubic-yard trucks. The ice was hauled to various areas within and adjacent to the city where it could melt without doing further damage.

After cleaning the street department garage of ice and debris and placing the city equipment back into service, our own forces also worked on the clean-up program. Their primary task involved clearing sidewalks using a Hough Payloader. The entire job took about one week and during that time the various crews hauled 1,000 truck loads of ice from the flooded areas. The work was done under the general supervison of Minor Layton, street department foreman.

When the cold snap hit, layer upon layer of ice collected on the creek to a thickness of 8 to 10 feet. A two-mile ice jam downstream completely blocked the stream causing the water to rise again, threatening the already water-logged city with a second flood. Army engineers came in to blast the ice-jam, and by February 7, eleven days after the blasting had begun, a channel was cut through the last of the heavy ice. As suddenly as it had risen to flood stage, the creek began to recede, dropping more than three feet in 24 hours.

Flood damages at Meadville reached an estimated $5,000,000. Other cities in Western Pennsylvania also suffered severe damage from floods during the first few weeks of the year, with total damages estimated at more than $32,000,000; however, conditions would have been far more severe without existing flood control measures. Unfortunately, there are no flood control projects in the Meadville area.

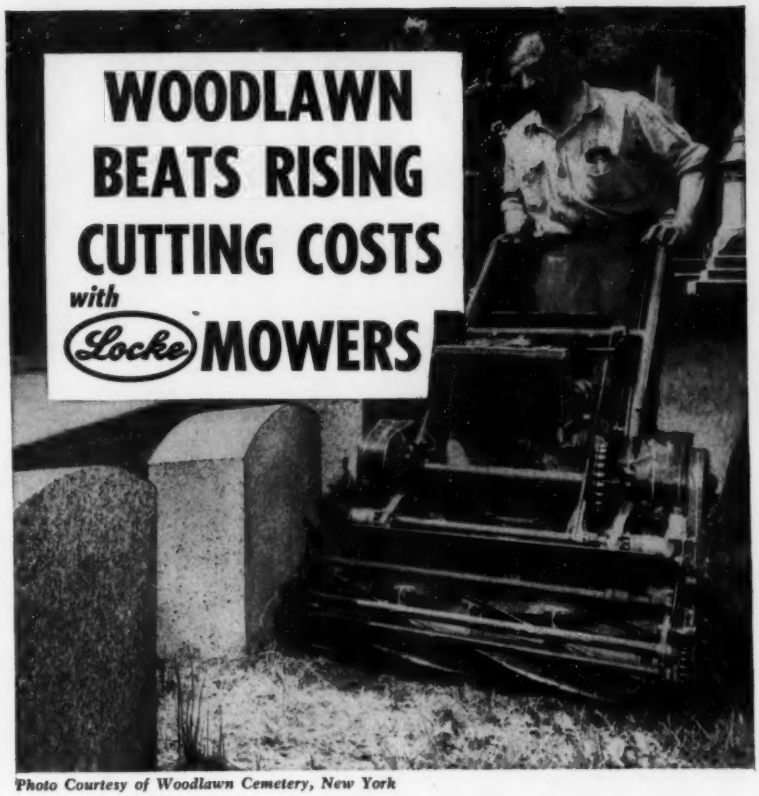


Photo Courtesy of Woodlawn Cemetery, New York

With over 400 acres of lawns, trees, walks and roads... grass cutting is a major cost factor at WOODLAWN CEMETERY. Especially since costs have risen 400% in a decade.

It's small wonder this world renowned New York Cemetery *buys equipment only on a basis of performance and longevity.*

Naturally, for deluxe lawns, they rely on LOCKES. Their 40 LOCKE Single Units work 4 days and are serviced on the 5th.

WOODLAWN management reports LOCKE standardization, top performance with elimination of practically all secondary trimming, accounts for faster, better lawn care and repair techniques; *resulting in the highest possible return for the dollar.*

LOCKE SINGLE UNITS: PLAIN OR REVERSE MODELS

- 25" Model cuts and trims .54 acres p.h.
- 30" Model cuts and trims .70 acres p.h.
- Equipped with either 2½ or 5 h.p., 4 cycle B. & S. engines.
- Roller drive construction.
- Turns at any angle.
- Entire mower travels on cut grass.
- Finger tip control.
- Full floating, counterbalanced and gauged shoes.

70" and 75" TRIPLEX models also available.

Be Prepared to Cut Your Grass Cutting Costs...
A LOCKE demonstration will convince you.
Send for details *TODAY!*

Locke **POWER LAWN MOWERS**
1315 Connecticut Avenue Bridgeport 1, Conn.
A product of Locke Steel Chain Co.

"Handie-Talkie" Pocket Transmitter with output up to 1½ watts.

"Handie-Talkie" Pocket Receiver gives optimum range through exceptional sensitivity. 100 milliwatt output assures message reception.

2-way pocket radio is here!

The man on foot is no longer alone! Here is 2-way radio so small, so light, that *every* policeman can easily carry it *on his belt or in his pocket.*

This new era in police communications multiplies the maneuverability, control and coordination of policemen on foot or away from their cars. The foot patrolman can now handle many routine emergencies in his area that used to require sending a squad car . . . adding new efficiency to the *entire* force.

You'll use these new Motorola 2-way radios in many ways. The foot patrolman can maintain contact with a nearby squad car when following a suspect or making an investigation. Detectives can keep in contact during house-to-house searches, and coordinate stake-out, special detail and other activities. Headquarters can locate and direct foot patrolmen almost instantly, and maintain contact with officers away from their radio-equipped vehicles.

Find out how *you* can broaden your communications system and bolster your effectiveness by integrating the new Motorola 2-way pocket radio with your present 2-way radio system.

MOTOROLA 2-WAY RADIO

Motorola Communications & Electronics, Inc., 4501 Augusta Blvd., Chicago 51, Ill. • A Subsidiary of Motorola Inc.

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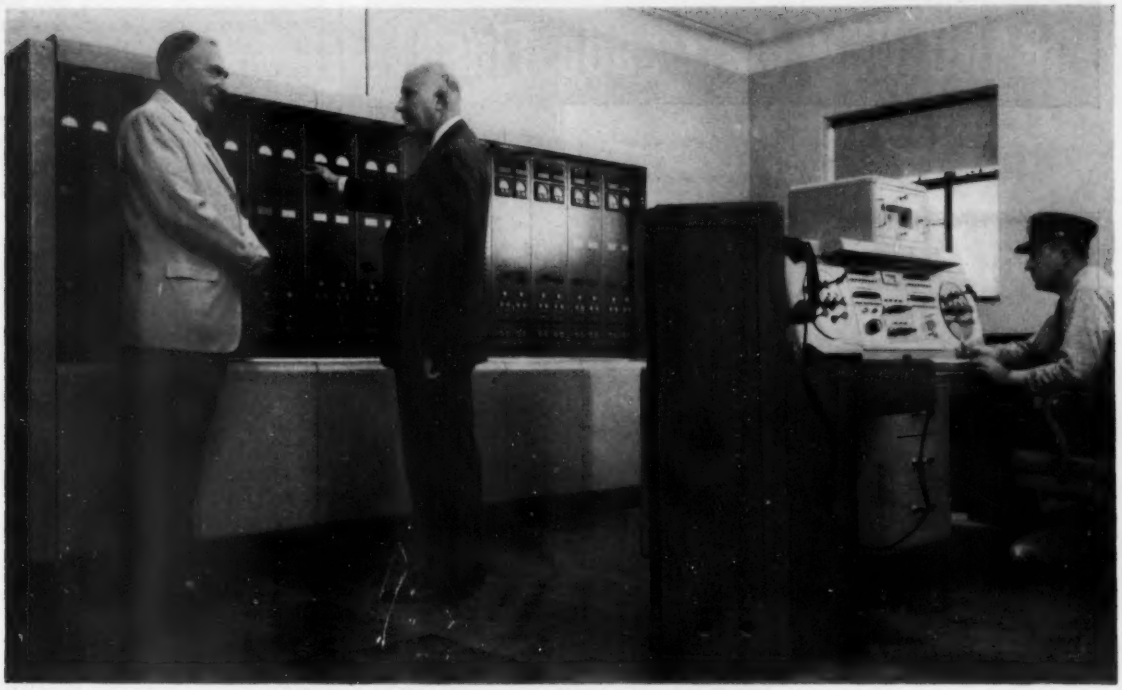


Public Safety Commissioner Goldman and City Manager Curran of Yonkers, N. Y. inspect the new central office equipment in the new fire alarm headquarters where all alarms of the city will come in and be retransmitted to the fire stations by the dispatcher at right.

Yonkers Stays With Telegraph Fire Alarm

Half-million modernization of existing system is based on careful comparison with telephone method

By **CHARLES L. CURRAN**
City Manager

The problem requiring action was a seriously overloaded fire alarm system. A complete survey of the City of Yonkers, N. Y., by the National Board of Fire Underwriters established this. It was a situation that could only grow worse. Yonkers has been growing and some areas have no fire alarm service.

NBFU does not make specific recommendations. It doesn't tell a city specifically what to do. It points out what has not been done and the dangers of neglect. The City Council recognized the need for an adequate fire alarm system.

What to Do

Should the 50-year-old Gamewell fire alarm telegraph system be modernized and extended? Or should it be replaced by a system installed by the New York Telephone Co.?

A Yonkers committee visited New Haven, Conn. where a telegraph system was recently installed by the telephone company. The committee then visited Beverly, Mass. where a modern Gamewell system was operating. The city then requested that extensive surveys be made by the New York Telephone Co. and the Gamewell Co.

Recommendations

The telephone company's proposal contemplated scrapping the existing telegraph alarm system and the installation of all new equipment to be owned and operated by the company. Capital cost to the city would amount to only $20,000. Annual maintenance and upkeep cost would run $100,000 in the form of rental.

The Gamewell Company's estimate contemplated the removal of the present dispatchers' office from City Hall to the central location occupied by Engine 12. This proposal also included modernization of the entire existent system. Antiquated

BRAND NEW Barricade Flash!

the Big Beam TRANSISTA FLASH

- **Transistor type, heavy duty for long, dependable life.**
- **No moving parts to get out of order.**
- **Two-directional head or 360° dome type Fresnel.**
- **Electronic flashing mechanism weatherproofed. Telescoping top and rubber gasket make battery case completely weatherproof.**
- **Acid-proof plastic liners prevent interior case corrosion.**

TRANSISTA FLASH produces approximately 2000 hours of continuous flashing from two standard 6-volt batteries, available anywhere. Provided with a concealed, tamper-proof switch operated from outside of case. Equipped with bracket for attaching to barricade. Lens or Fresnel supplied in either amber or red plastic—specify color. Flash frequency is approximately 72 times per minute. Lamp is finished in yellow baked enamel.

Model 410T

No. 433 Barricade—All metal, strong, stable on any surface. Has angle iron construction, closed ends.

Model 418T—with dome type Fresnel.

Model 417T—7 inch head. Otherwise, same as Model 410T.

Big Beam—makers of explosion-proof lamps, emergency lights, hand lamps and flares. 8393

U-C-LITE MFG. CO. 1063 West Hubbard Street Chicago 22, Illinois

Export Department: 201 N. Wells St., Chicago 6, Ill. Cable Address: ENOTS
In Canada: Bernard Marks & Co. Ltd., 70 Claremont St., Toronto 3, Ontario

boxes would be replaced and additional boxes installed in areas not protected by fire alarm. All this would be covered by a capital charge of $465,000.

The proposal provided the traditional independent, separately controlled system for dependable fire protection that meets the fire chief's needs and the city's fire defense plan. Alarms from fire boxes are manually retransmitted from central office to fire houses as are alarms originating at the central office.

Moreover, instead of one point of control, the new layout consists of a headquarters control and five substations each capable of taking over its portion of the entire alarm system in the event of any emergency. Normal operation, however, is from headquarters. The new system also furnishes selective notification whereby an alarm is transmitted only to the fire companies involved.

The Decision

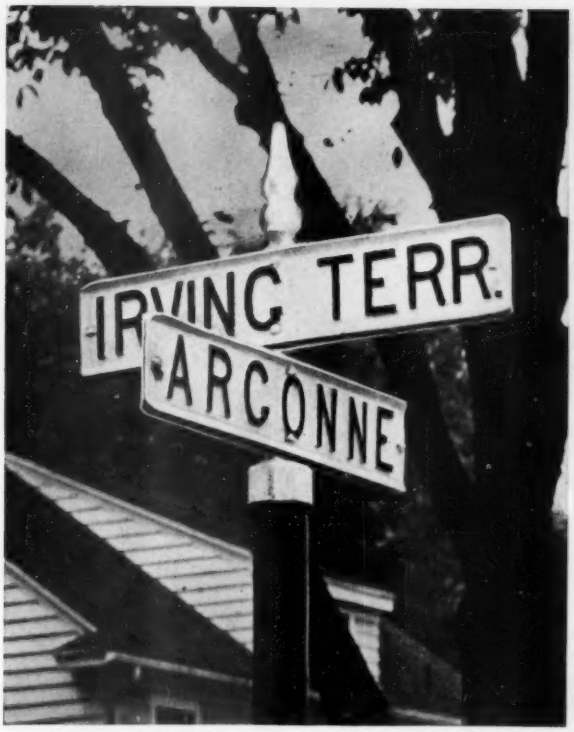
One of the solid facts confronting City Council was the existing fire alarm system consisting of 16 circuits averaging 30 alarm boxes on each, valued at one-half to three-quarter million dollars. This was quite a chunk of capital to plow under.

The original system and the modernized system offered by the Gamewell Co. are city-controlled and operated. They are not subject to possible telephone troubles such as strikes.

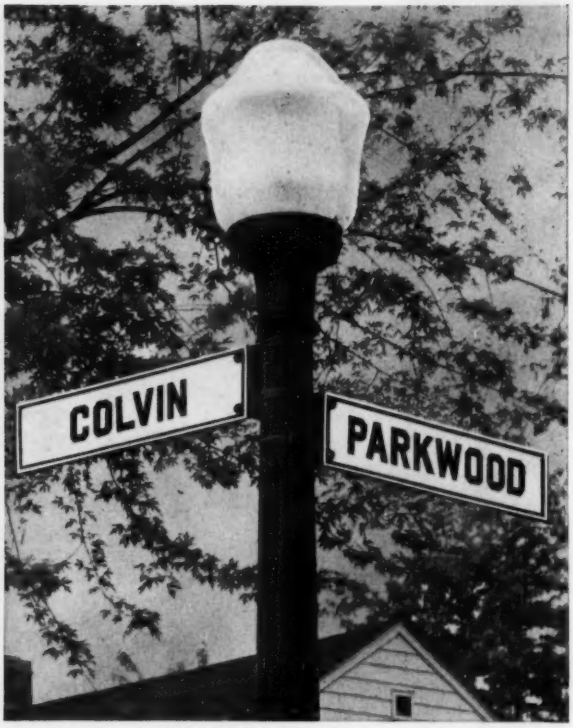
A second solid fact, and probably the heaviest, was that Yonkers is a second class city. There is a law that governs the five second class cities in New York State. It is that the city cannot spend more than 2% of its average assessed valuation of the last five years for administrative purposes, that is, to operate the city. The telephone rental would be an annual budget charge and would overload the legal operating allowance.

Improvements, on the other hand, come under the capital budget. The state law permits 8% of the five-year average of valuations to be spent for improvements. The entire cost of modernization of the existing fire alarm telegraph system would come out of the city's capital budget.

The city manager recommended to the City Council that the Gamewell proposal be accepted. Work has proceeded since November 1958 and is now complete.



Cast aluminum street signs like these were installed in Tonawanda, New York, 30 years ago . . . one of the first such installations in America. They're still going strong today.



Modern signs of aluminum sheet now grace Tonawanda's newer street corners. Today, virtually all of the township's sign needs are served by lightweight, rustproof aluminum.

30 YEARS LATER: THE DESIGN HAS CHANGED . . . THE **MATERIAL** REMAINS THE SAME!

"No need to sell *us* on aluminum!" says Russell Corrie, Township Superintendent, Tonawanda, N. Y.

"We've seen its advantages demonstrated over three decades. For rustproof durability, quick installation and lifetime economy no other material can match aluminum."

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THE BRIGHT STAR OF METALS

Let us make a bid. For expert service on money-saving aluminum signs, call the manufacturer, fabricator or Kaiser Aluminum sign blank jobber near you.

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Paul H. Callender Co.
Chicago, Ill.
Bell & Gustus, Inc.
Federal Sign & Signal Corp.
Cleveland, Ohio
Osco Steel Co.
U. S. Steel Supply
Clinton, Mass.
Standard Sign & Signal Co.
Dallas, Tex.
All Quality Sign & Mfg. Co.
Elmira Heights, N. Y.
Eastern Metals of Elmira, Inc.
Evanston, Ill.
Northwest Screenprint Co.
Grand Prairie, Tex.
Sargent-Sowell, Inc.
Houston, Tex.
Western Sign & Supply Co.
Indianapolis, Ind.
Midwest Fire & Safety Equipment Co., Inc.
Lancaster, Pa.
John I. Nissly Co.
Little Rock, Ark.
Moody Equipment & Supply Co.
Marion, Ind.
Jim Newey and Assoc.
Metairie, La.
W & A Engineers
Miami, Fla.
Biscayne Fire Equipment Co.
Minneapolis, Minn.
Lyle Signs, Inc.
Monrovia, Calif.
Mask-Off Co.
North Tonawanda, N. Y.
Northern Electric Supply Co.
Overland, Mo.
Wiegand Mfg. Co.
Peoria, Ill.
James P. Flynn Co.
Petaluma, Calif.
Kresky Signs, Inc.
Philadelphia, Pa.
Advertisers Service Co.
Rocky River, Ohio
Bowman Western Stamping Co.
Sacramento, Calif.
The Dosch Co.
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Send now for free brochure. Gives cost-saving facts and availabilities on traffic control signs made of Kaiser Aluminum. Mail coupon today.

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CITY_____ **ZONE** ____ **STATE**_____

"Our Burroughs Accounting Machine gives us iron-clad control of 60 departments and $3,000,000,"

says Joseph B. Heywood, Comptroller, City of Auburn, New York

"Talk about budget control! We get an *up-to-the-minute* accounting of our financial standing through our Burroughs system.

"Basically, our system revolves around uniform accounts for all departments, centralized budgetary accounting and accounts payable records—and an 11-total Burroughs Sensimatic Accounting Machine.

"With this simplified procedure—centrally posting and liquidating all approved claims on the Sensimatic—we automatically get current information of outstanding purchase orders, expenditures to date, and unencumbered balances for the city and each of its departments.

"Once the data have been introduced into the machine, the Sensimatic automatically manages claims, revenues, project ledgers, our payroll, and a great many other operations that we have assigned to the machine."

Want to streamline your accounting? Work with fresh figure-facts? Call our nearby branch and ask for a demonstration by a Burroughs Systems Consultant. Or write Burroughs Corporation, Burroughs Division, Detroit 32, Michigan. Burroughs and Sensimatic—TM's

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"NEW DIMENSIONS / in electronics and data processing systems"

Filing and Indexing Fort Collins Records

By MILES F. HOUSE, City Clerk, Fort Collins, Colo.

The records in the office of the city clerk of Fort Collins, Colo., extend back to the minutes of the first council meeting in 1873, and are kept in two vaults. The office vault contains the "live" records—recent, current, active—and the basement vault, the "dead" records that are required by the Colorado State Archivist to be preserved either for a certain period of time or continually. In moving to the new City Hall, a re-arrangement and re-organization of these records has been made, and an index compiled using Acme Visible Records equipment.

The index is kept in a cabinet of 36 drawers, each containing 65 tabs for inserting cards. The system used is that of cross-indexing whereby a single record can be found listed under several headings. For example, an agreement made between the Great Western Sugar Company and the Light and Power Department in 1955 is found in the index under "Agreements: Light and Power Department," "Light and Power Department:—Agreements," and "Great Western Sugar Co., agreement with Light and Power Department."

The cabinet files in the office vault are arranged in two sections. The drawers of one are labeled alphabetically and those of the other, numerically. The records are kept in pockets, and the pockets grouped into sections where two or more categories are filed in one drawer. The general index to these cabinet files indicates in which group of cabinets, which drawer and which section a given record has been filed. A further breakdown of the cabinet files into separate indexes has been made for subjects requiring more extensive or more detailed filing, such as "Annexations," "Indentures," "Sewer," "Water," and "Zoning."

The *annexations* are filed chronologically, starting with the map of the original town site, dated 1873, and are contained in pockets labeled alphabetically. In addition to the cabinet filing, annexation maps, either blue-prints or tracings, are numbered and filed in tubes also labeled alphabetically. The annexation index includes a separate section, under the letter "T," for this tube file. For each annexation the cabinet file pocket letter, the tube letter and map number are all given; also the ordinance, filing date, and, in several cases, the dedication date and approximate acreage are shown in the index.

The index to the *indentures*, filed in document pockets, is compiled in two divisions. The first divides the indentures into categories, such as "Affidavits," "Franchises," "Bills of Sale," "Quit Claim Deeds," "Warranty Deeds," "Easements" and "Leases." Within these categories each indenture is arranged chronologically and numbered. The second section shows the topics, such as "Additions," "Railways," "Sewers," etc., and also the parties to the transactions. A separate listing of parties to the transactions enables one to locate an indenture when uncertain of its category or topic. For instance, in this section one finds listed under "State Board of Agriculture," three right-of-ways and a quit claim deed.

The *sewer, water* and *zoning* files are arranged in pockets labeled numerically, and the indexes to them are alphabetical with cross-references.

The *vacations* of portions of alleys, streets, blocks, etc., are ar-

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Presented at a panel discussion held at the 13th Conference of The National Institute of Municipal Clerks, May 18-21, at the McAllister Hotel, Miami, Fla.

WATER FILE: Northern Colorado Water Conservancy District

"NORTHERN COLORADO WATER CONSERVANCY DISTRICT": Poc. 5 (Ords. 4-1938, 10-1948, 12-1951, 5-1957)	Recommendation Light & Power Dept. that City purchase shares in Northern Colo. Water Conservancy Dist. for not less than 1000 additional acre-ft of Water, 1938: Poc. 5
City interested in obtaining water released in Hottel Farm & 10,000 acre-ft of Horsetooth wtr., 1957: Poc. 5	Request for right to cross under City pipe line w, siphon: North Poudre Supply Canal, 1951: Poc. 5
	Resolutions 1951 authorizing quit-claim deed & easement to: Poc. 5
Confirmation of Water Transfer Order of 350 acre-ft to Great Western Sugar Co., 1954: Poc. 5	"Resolutions Regarding Grand Lake (Colorado-Big Thompson) Diversion Project 1937-8": Poc. 5
Petitions of City for additional allotments of wtr.: Poc. 5	
"Progress Report" 1950: Poc. 5	See also under: "HORSETOOTH WATER" (Rental Applications): Poc. 6

WATER FILE: Northern Colorado Water Conservancy District

The City Clerk's records are carried on 8x5¾ cards with subject at top and bottom as shown by the half-size sample.

Record snows in upper New York State — no problem for this powerful A-W Super 300 grader equipped with V-plow and wing.

How exclusive features of Austin-Western graders

SPEED SNOW REMOVAL

Only Austin-Western graders offer all-wheel drive and all-wheel steering. Years of experience prove these two exclusive features help make Austin-Westerns the fastest, most efficient and powerful snow removal equipment available anywhere!

No front-end dead weight

All-wheel drive gives front-end traction to deliver powerful push-pull driving action for deep plowing—no front-end dead weight on an A-W.

Encountering heavy drifts, ordinary graders stall out, get stuck or bounce off. But not A-W's! All-wheel steering enables operator to steer the rear towards drifts, controlling traction and direction of travel to offset sidethrust of full plow load when widening or winging.

Precision hydraulic controls reduce operator fatigue—permit fast, easy operation from warm, weathertight cab. Quality built for dependable high performance; low maintenance. This next winter, rely on A-W graders; keep roads and streets open! Superior, too, for year-round all-purpose construction and maintenance.

Available in 6-wheel Super and 4-wheel Pacer series—wide range of weight classes and horsepower ratings!

ALL-WHEEL DRIVE puts power up front.

ALL-WHEEL STEERING lets you steer both front and rear.

Get all the facts today from your nearest Austin-Western distributor—or write direct!

Austin 100th YEAR Western

CONSTRUCTION EQUIPMENT DIVISION, AURORA, ILL.

BALDWIN · LIMA · HAMILTON

Power graders • Motor sweepers • Road rollers • Hydraulic cranes

ranged chronologically, and a separate, detailed index, kept in the first two vacation pockets, has been made covering the years from 1903 to 1956. Recent vacations from 1958 on are filed in a third pocket and are included in the general index.

Indexing the *ordinances* has required reading through the 1,391 ordinances recorded in ten volumes from 1873 through 1958 as well as those adopted recently, sifting out the main subjects treated in each ordinance and then organizing this data into a chronological and alphabetical index.

As implied above, the index to the ordinances is in two sections. The first presents the ordinances chronologically from 1879 to the present, listing numerically the ordinances for each year giving the date each was passed, the book and page numbers and all the amendments and repeals pertaining to each ordinance. For example, in order to locate Ordinance No. 13, 1927, by the index, find the year 1927, then Ordinance No. 13. The index shows it was passed on May 28th, is in Book 6, Page 503, that it amends Ordinance No. 10, 1925, and that it was amended by Ordinance No. 2, 1931.

Categories

The second part of the ordinance index is arranged alphabetically according to topics or categories. For instance, in order to find an ordinance pertaining to the sale of meats, look under "Foods and Food Inspection," find the part dealing with "meats," then the sub-topic "sale of."

In the case of sub-categories which entail numerous ordinances, a cross-reference is made under the main topic. For example, in order to locate ordinances pertaining to the sale of milk and milk products, you would likewise look under "Foods and Food Inspection" where there is a cross-reference, "See under 'Milk' "—or you could turn directly to the topic "Milk."

In addition to looking up specific ordinances, this index has other uses. It is frequently necessary to certify copies of ordinances. In these certifications it is necessary to state the book and page number where a given ordinance is recorded. Formerly one had to guess in which volume an ordinance was to be found. Using the index, one need locate only the year of the ordinance to find out where it is recorded without looking up the ordinance itself. Also, in studying all

of the ordinances pertaining to a given subject, one need locate only the topic in the index to find listed all of the ordinances passed regarding it. For instance, all of the ordinances pertaining to dog licensing, including repeals and amendments, are listed under the topic "Dog," to which there is a cross-reference under "Licenses."

The *Records of the City Council* are kept in 33 volumes labeled alphabetically and dating from 1873. To facilitate finding the minutes of a given council meeting, an index has been made showing the dates of the council meetings contained within each volume.

Map Room

A *map room* has been equipped with two cabinets and 40 sliding racks onto which maps have been mounted so that they can be drawn out for inspection. Seventy maps of subdivisions and additions have been mounted to supplement and bring up to date the city maps printed in 1934. Seven racks at the back of one of the cabinets contain the maps of the sections of Grandview Cemetery. The racks are numbered and an index has been attached to each cabinet.

The *basement vault*, containing old records, is equipped with shelving, file cabinets and storage boxes. An index is to be compiled and kept in the office vault, showing where the records in the basement vault have been filed.

Variety, Parking Sought By Shoppers

Neighborhood shopping centers do not compete with downtown or regional centers for non-food sales, a recent Detroit survey reported by the American Municipal Association shows.

Conducted by the Mayor's Committee for Industrial and Commercial Development, the study reveals that:

—Wide selection, variety and convenience were the reasons most frequently mentioned for selecting particular shopping areas.

—Two-thirds of the respondents near a neighborhood shopping center do not consider it their normal shopping area for non-food items, generally preferring a center with a department store. Grocery stores do not draw customers to non-food stores, on the whole.

—Over half of the shoppers use their car rather than public transportation.

Austin-Western Model 60 Sweeper leaves street and gutter fresh and clean.

Austin-Western Model 60 sweeper replaces 6 men, 2 trucks in Batavia, N.Y.

"The Austin-Western sweeper is maneuverable . . . tricycle steering lets you get right in close to parked cars. Plenty of visibility, too. The operator sits right up front where he can see what he's doing and where he's going. You don't have such good visibility on sweepers with front end hoppers!" That's what Batavia, N.Y., maintenance chief, Art Snyder, has to say about sweepers.

Rear dump feature important

"On the average," Mr. Snyder reports, "we can sweep 18 miles before making a run to the dump. The 4-plus cu. yd. hopper really holds a load! The A-W has plenty of speed to travel to the dump and back quickly. The hydraulic controlled rear dump feature saves time too. Just dump and drive forward, all in about a minute.

"One man on the A-W 60 replaces 6 men and 2 trucks. Before, when we dumped on the street, the trucks and men followed and hauled the loads to the dump. Now trucks and men can be kept at their regular job assignments and no extra help need be hired. These are real dollar savings that mean a lot to Batavia and to our department's budget!

Sold on Austin-Western

"We've been using Austin-Western sweepers here for over 20 years. We've also got a 1933 A-W 12-ton 3-wheel roller and a 1948 99H grader. Service from our A-W distributor is good. Maintenance on all our A-W equipment is low. Just routine service . . . never any downtime. We're sold on Austin-Western!"

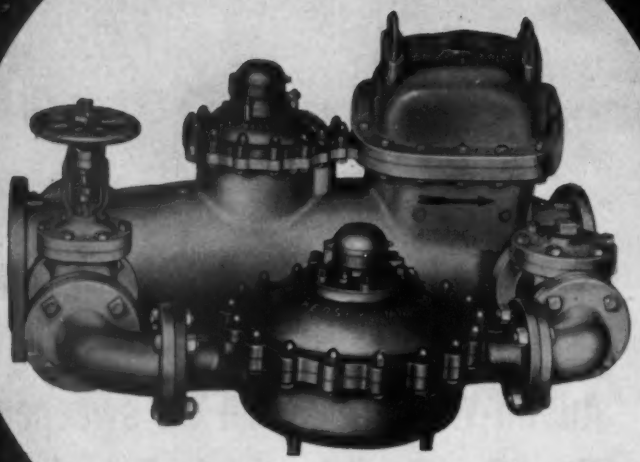
Two Austin-Western sweepers available—Model 60, with 4-plus cu. yd. hopper capacity, and the 2-cu.-yd. Model 40. For complete information, see your nearby A-W distributor or write us today!

Austin 1859 AUSTIN-WESTERN 1959 100th YEAR PARTNERS IN PROGRESS Western
CONSTRUCTION EQUIPMENT DIVISION, AURORA, ILL.
BALDWIN · LIMA · HAMILTON
Power graders • Motor sweepers • Road rollers • Hydraulic cranes

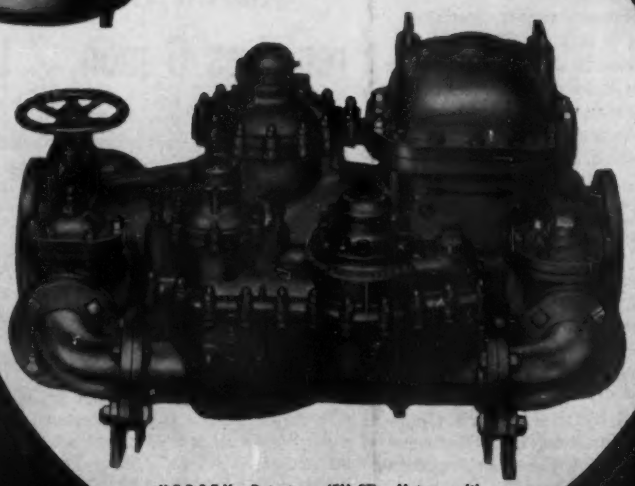
HERSEY

DETECTOR (Fire Service) METERS

Are available in Two Types — shown below



HERSEY Detector Meter with Disc Meter on By-Pass



HERSEY Detector (FM-CT) Meter with All-Bronze Compound Meter on By-Pass

For your own protection it is wise to install

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Detector (Fire Service) Meters on all industrial fire service lines

Call our nearest Branch Office for detailed information

HERSEY MANUFACTURING COMPANY

(Established 1859)

DEDHAM, MASS.

BRANCH OFFICES NEW YORK — PORTLAND, ORE. — PHILADELPHIA — ATLANTA — DALLAS — CHICAGO
SAN FRANCISCO — LOS ANGELES

YOU CAN'T BUY A BETTER WATER METER THAN HERSEY

Modern Water Rates PART X

How to Bill Water Customers

. . . and not make enemies of them

Many water departments are showing a distinct trend toward efficiency and thriftiness in their billing procedures. But those which ask payment in an ungracious, truculent manner should not be surprised to see the public turn a deaf ear when the water department wants rate increases or bond issues approved.

On the credit side, roughly four-fifths of the water works surveyed in this study now use some type of automatic billing. This compares with only two-thirds some five years ago. The bills are simple and cities have been quick to utilize the efficiency of a single billing for other services provided by the city that require service charges. Many bill for sewer service, refuse, and electric power when this is provided as a municipal function.

On the debit side, all too many bills seem to reflect the attitude that the department doesn't enjoy the task, and any comments from the customer will produce the back-of-your-hand treatment. On all too many bills, one finds in bold-face letters, statements such as the following:

10% Penalty Will Be Added.
No Discount.
Failure to receive bills does not void the 10% penalty.
Water charges become a lien on the property 60 days after same are due.
At the end of 14 days, if payment has not been made, water service will be terminated and lien proceedings started.
Remittances by mail are at the risk of the sender.
Do not fail to bring this bill.

One can question the use either of a penalty or a discount in order to stimulate prompt payment. But certainly if either is to be used, the water works should use the carrot approach, not the club, and should reward the customer with a discount for promptness instead of punishing him with a penalty. Actually, both add up to the same; the former, however, is an exercise of better manners.

Most bills are starkly impersonal. Many are processed and mailed out on post cards, making public the amount of the bill and also the amount previously unpaid, if any. No other business would bill its customers so openly. In recognition of the right of privacy, they would at least put the bill in an envelope. For the customer's convenience, they also would enclose a self-addressed return envelope, even though the customer may choose to pay the bill personally. To win customer support, the envelope also ought to have a little material of promotional nature in it. It need not be anything more than an announcement of work currently under way to make the water department better able to serve the customer. A bill can be persuasive and encourage prompt payment without punching the customer in the nose.

The bare elements that a bill should have are simple. It should tell the amount of water used by showing the present and previous meter readings; and it also should show the charge. It ought to show the rates on which the charge is based. It should provide one copy for the customer and one for the water department. Some do this by a perforated stub, some by making a duplicate.

The use of automatic equipment ought to be recognized for what it performs. The equipment provides speed, legibility, and accuracy. Most billing equipment can be fitted to virtually any form of bill

You get what you pay for, every time . . . and it PAYS to invest in the experienced engineering, expert workmanship and dependable operation of

BLACKBURN-SMITH
Pneumatic
SEWAGE EJECTORS

Satisfied users of Blackburn-Smith Ejectors everywhere are convinced they've made the best investment in "B-S" efficient, economical, uninterrupted sewage lift service. No pump troubles; no clogging or cleaning; no complex piping; lowest maintenance cost. Single, duplex units. 30 to 500 g.p.m. Discharge heads to 150 ft. The dependably engineered product of 60 years of experience.

SEND FOR LATEST BOOKLET

Booklet S-55 gives all needed installation and operating data for single and duplex systems. Write for it today.

S 55

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57 Garden St., Hoboken, N. J.
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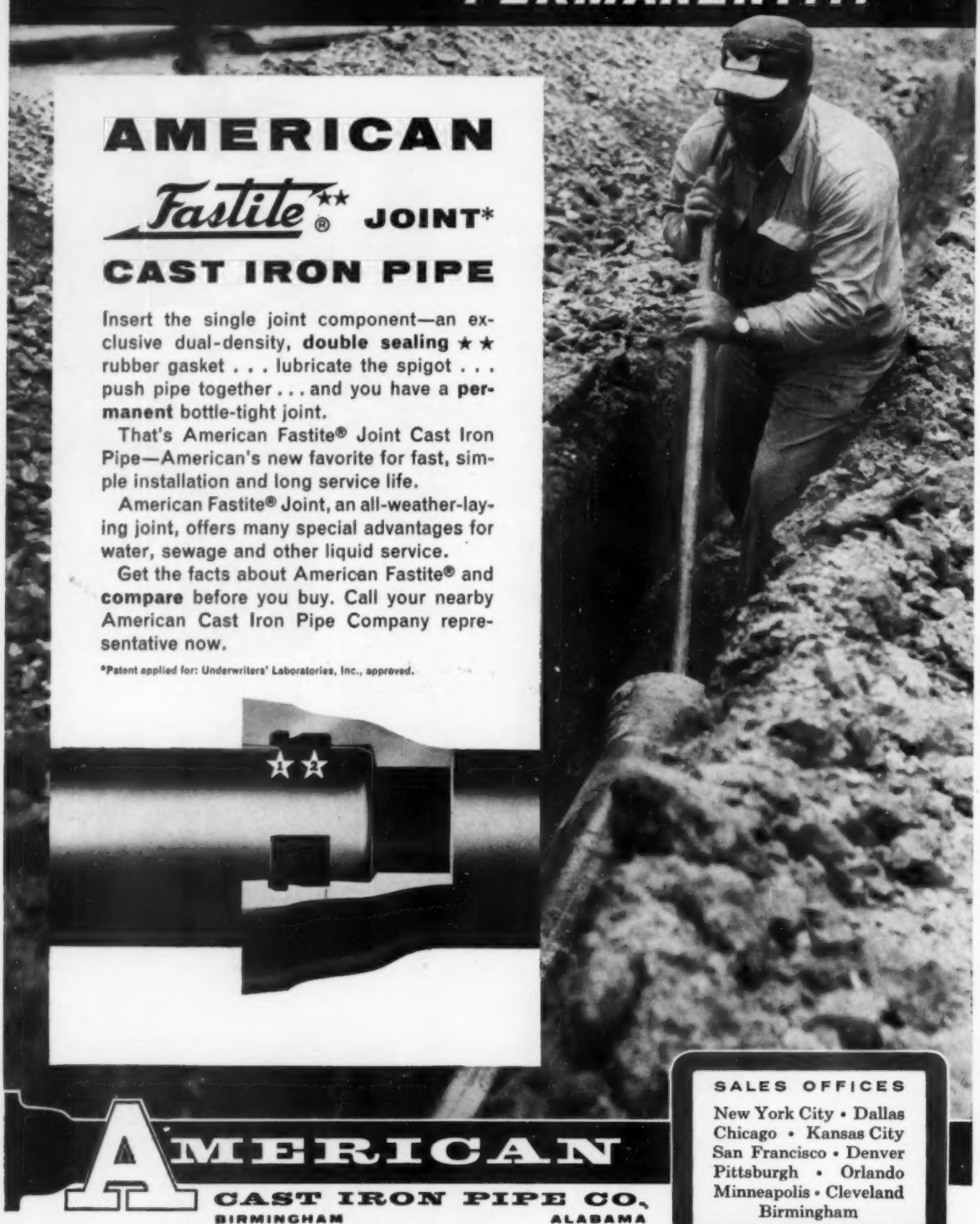
only ONE PUSH makes it PERMANENT...



AMERICAN Fastite® ★★ JOINT* CAST IRON PIPE

Insert the single joint component—an exclusive dual-density, **double sealing** ★★ rubber gasket . . . lubricate the spigot . . . push pipe together . . . and you have a **permanent** bottle-tight joint.

That's American Fastite® Joint Cast Iron Pipe—American's new favorite for fast, simple installation and long service life.

American Fastite® Joint, an all-weather-laying joint, offers many special advantages for water, sewage and other liquid service.

Get the facts about American Fastite® and **compare** before you buy. Call your nearby American Cast Iron Pipe Company representative now.

*Patent applied for: Underwriters' Laboratories, Inc., approved.

AMERICAN CAST IRON PIPE CO.
BIRMINGHAM ALABAMA

SALES OFFICES
New York City • Dallas
Chicago • Kansas City
San Francisco • Denver
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Birmingham

that the department requires without difficulty.

The use of equipment that bills with punched cards probably is fastest but the investment in equipment limits it to rather large cities. In general, this seems to be practical for cities of 100,000 or more, though one city of 28,000 uses it.

In the present series, the smallest city to bill using automatic equipment is one of 5,000. The largest city to process bills without automatic equipment is one of 367,000. A few cities turn their billing operation over to central agencies that also process bills for other businesses in town.

In final analysis, a water department must realize that the bill is its one personal contact with the customers it serves and, in most cases, who are its owners. Bond issues for improvements will win approval more easily, raises for water department employees will be granted more promptly, and the confidence in and professional status of the employees will be greater if these bills can request payment graciously.

BATTLE CREEK, MICH.

Rates Per Month

Cubic Feet		*Per 100 Cubic Feet In City*	*Outside*
First 100	....	Minimum	Minimum
Next 3,900	....	$0.20	$0.30
" 296,000	....	.15	.22½
" 700,000	....	.09	.13½
Excess		Special rate by contract	

Minimum Monthly Charges

Meter Size (in inches)	*Charge In City*	*Outside*
⅝	$0.56	$0.84
¾	.70	1.05
1	1.03	1.55
1½	2.00	3.00
2	3.36	5.04
3	7.26	10.89
4	12.66	18.99
6	28.26	42.39
8	50.27	75.41
12	113.20	169.80
16	201.06	301.59

Fire Protection

Private fire hydrants .. $40.00 per annum
Sprinkler service:

Size of Service Line (in inches)	*Monthly Charge*
2	$1.00
3	2.50
4	4.50
6	10.00
8	17.50
10	27.50

Typical Monthly Costs

Gallons	*Cubic Feet*	*Charge In City*	*Outside*
3,000	400	$1.16	$1.74
5,000	667	$1.16	2.54
10,000	1,333	3.02	4.54

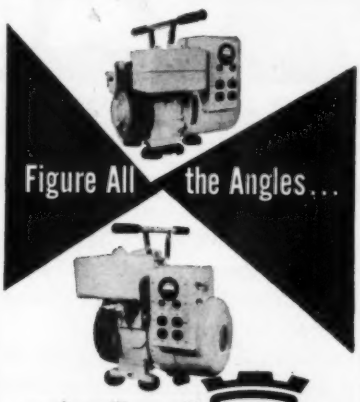
General Data

Population served	52,000
Miles of mains	164.7
Services (100% metered):	
Domestic	13,090
Commercial	517
Public	—
Supply—Wells	
Treatment—Chlorine, fluoride	

(Continued on page 177)

SPECIFY a Strataflo Strainer on your next pump job. Made in many sizes and from almost any metal. Ask your pump manufacturer. For more information, send for Bulletin 905

STRATAFLO PRODUCTS, inc. Fort Wayne, Indiana



and you'll specify pm *Electric Plants*

Read how exclusive PM features put job pay-out dollars *right back in your pocket!*

- RPM indicator puts $70 each 6 months in your pocket!
- Automatic spark advance puts $60 every 6 months in your pocket!
- Pushbutton start puts $30 per month in your pocket!
- Remote control puts $30 per month in your pocket!

Write for free demonstration. There's a PM Field Engineer near you.

Pacific Mercury
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Manufacturers of the Thomas Electronic Organ

SPECIAL INSURANCE FOR MUNICIPAL EQUIPMENT

It is now possible to insure municipal equipment in "All Risks" policies to afford you broader protection. Policies are available for road graders, school band instruments and uniforms, voting machines, power mowers, snow removal equipment and many other items.

Coverage includes fire, theft, windstorm, flood, earthquake and all other perils not specifically excluded. Write today for complete information.

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ÆTNA CASUALTY AND SURETY CO.
STANDARD FIRE INSURANCE CO.
Hartford 15, Connecticut
Affiliated with Ætna Life Insurance Co.

Please send me complete information on "ALL RISKS" INSURANCE for Municipal Equipment.

_____

_____

_____

IOWA *valve installation at Fort Dodge, Iowa, pumping station which pumped 1,600,000,000 gallons of water in 1958 as against 350,000,000 gallons in 1932.*

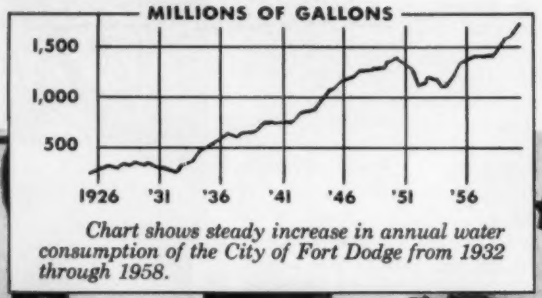
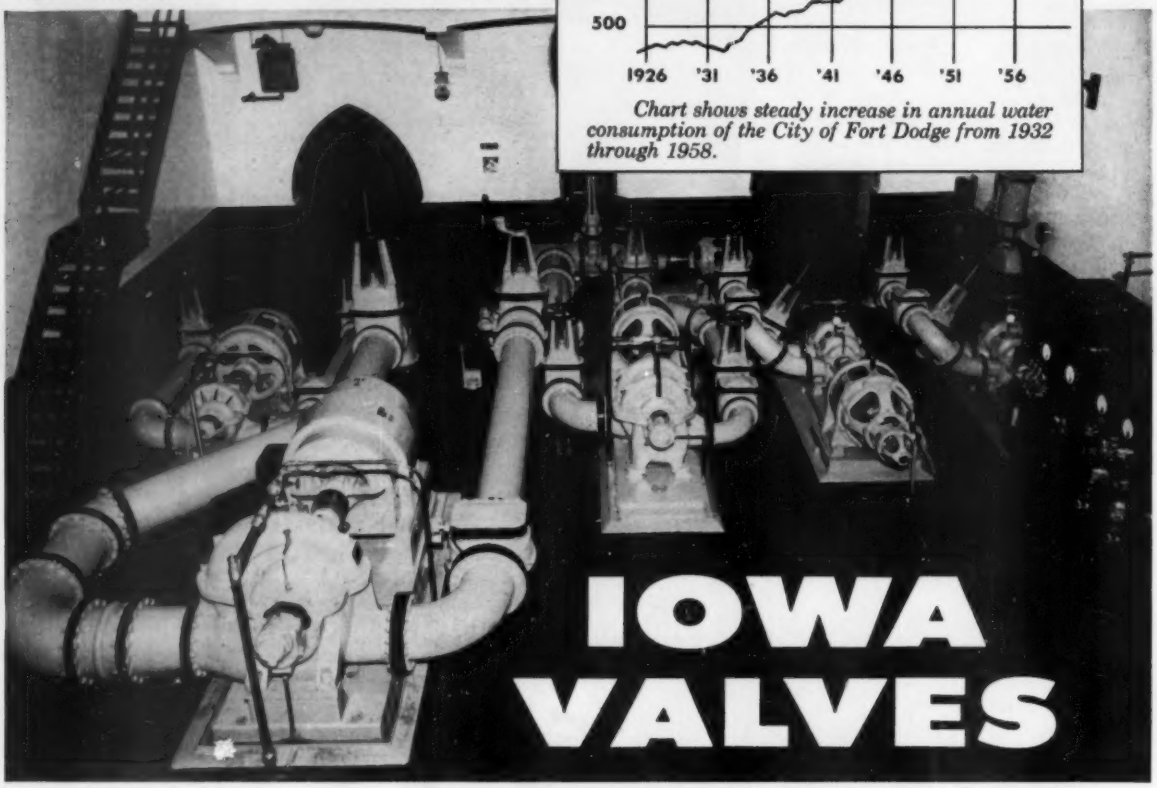


Chart shows steady increase in annual water consumption of the City of Fort Dodge from 1932 through 1958.

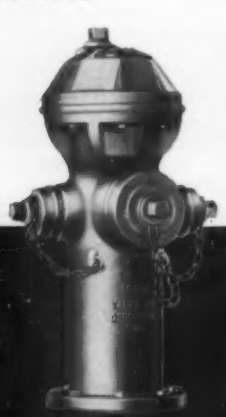


...enable Fort Dodge waterworks to meet 457% increase in demand in 26 years

OUR 50th YEAR
1909 • 1959

For over 26 years, IOWA Valves have played an important part in meeting the water needs of the growing City of Fort Dodge, Iowa. For half a century IOWA and IOWA service have been growing to meet the needs of towns and cities from coast to coast.

Few manufacturers can match IOWA in the wide variety of valves and accessories for every type of service. IOWA valves meet the most exacting specifications for flow control in distribution and fire protection systems, sewage treatment and water filtration plants. It will pay you to call in an IOWA man before placing your order.



Let us send you details on Iowa's complete line of valves and hydrants

IOWA
VALVE COMPANY
A Subsidiary of James B. Clow & Sons, Inc.
Oskaloosa, Iowa

(Continued from page 175)

Plant capacity ..... 32.5 mgd
Average demand ..... 15.09 mgd

Remarks

1. Utility provides service line to property only.
2. Utility provides the expense of new main extensions for 50 feet of each property owner's frontage, and also through street intersections.
3. The Battle Creek Department of Public Works operates both water and sewer services. Both services are billed for.
4. Billing is done on Burroughs billing machines.
5. Water rates were increased in March 1957. Water use was not affected. Further adjustment of rates is not needed at present.

K. E. GARVEY
Superintendent
Water and Sewer Division
Department of Public Works
Battle Creek, Michigan

CHARLESTON, W. VA.

Rates Per Month

Gallons	*Per 1000 Col. A**	*Gallons Col. B**
First 2,000	$0.70	$0.875
Next 3,000	.59	.74
" 25,000	.49	.61
" 70,000	.42	.53
" 100,000	.32	.40
" 100,000	.26	.33
Excess	.18	.23

*Rates in Column A apply in the entire territory served by the Charleston System of the West Virginia Water Service Company except such territory as is served by booster stations. Rates in Column B apply to the territory served by booster stations.

Minimum Monthly Charges

Meter Size (in inches)	*Charge Col. A*	*Col. B*
⅝ or less	$ 1.40	$ 1.75
¾	2.00	2.50
1	3.60	4.50
1¼	5.60	7.00
1½	8.05	10.10
2	14.35	17.90
3	32.25	40.30
4	57.35	71.70
6	129.00	161.30
8	229.35	286.70

Typical Monthly Costs

Gallons	*Cubic Feet*	*Charge Col. A*	*Col. B*
3,000	400	$1.99	$2.49
5,000	667	3.17	3.97
10,000	1,333	5.62	7.02

General Data

Population served 194,000
Miles of mains 628
Services (100% metered):
Domestic 45,081
Commercial 2,579
Other 374
Supply—Kanawha and Elk Rivers
Treatment—Coagulation, sedimentation, filtration, pre- and post-chlorination.
Plant capacity ..... 27.6 mgd
Average demand ..... 21.0 mgd

Remarks

1. Utility provides service lines to property only.
2. The West Virginia Water Service Company has nothing to do with sewer services.
3. Billing is done on National Cash Register equipment.
4. A rate increase of approximately 15% over the rates shown here was put into effect (under bond) on July 25th of this year. The new rates have been filed with the Public Service Commission and are subject to change in a case now pending before the Commission.

W. B. HALL
Engineer
West Virginia Water Service Co.
Charleston, West Virginia

KIRKWOOD, MO.

Rates Per Quarter

Cubic Feet	*Per 100 Cubic Feet*
First 3,350	$0.3042
Next 3,350	.2822
" 3,350	.2525
" 3,300	.2301
" 13,350	.2003
" 13,350	.1485
Excess	.1320

Same rate outside city.

Minimum Quarterly Charges

For all meter sizes $3.45

Typical Quarterly Costs

Gallons	*Cubic Feet*	*Charge*
9,000	1,200	$ 3.65
15,000	2,000	6.08
30,000	4,000	12.04

General Data

Population served 28,000
Miles of mains 90
Services (100% metered):
Domestic 8,296
Commercial 120
Supply—Well and river
Treatment—Aeration, settling, softening, filtration; mechanical rapid mix, flocculation and sludge removal.
Plant capacity ..... 6 mgd
Average demand ..... 2 mgd

Remarks

1. Utility provides no part of service line.
2. Utility provides no part of cost of new main extensions.
3. The Kirkwood Water Department has nothing to do with sewer services.
4. Automatic billing equipment is used.

(Continued on page 179)

When it comes to your bucket jobs come to O'Brien!

See the all-power Sewerking® BUCKET MACHINE for 1960!

READY NOW—the revolutionary Bucket Cleaner that completely removes sand, big roots and other heavy sewer obstructions as never before! Built extra heavy, strong and safe—important automatic features for easy operation—greater power, pull and capacity to clean more sewer at lower cost!

ASK FOR INFORMATION ON THE NEW SEWERKING BUCKET DUMPER

WRITE, WIRE OR PHONE TODAY FOR FULL INFORMATION —without obligation!

AVAILABLE IN 9-16-25 HP.

NATIONWIDE SALES AND SERVICE
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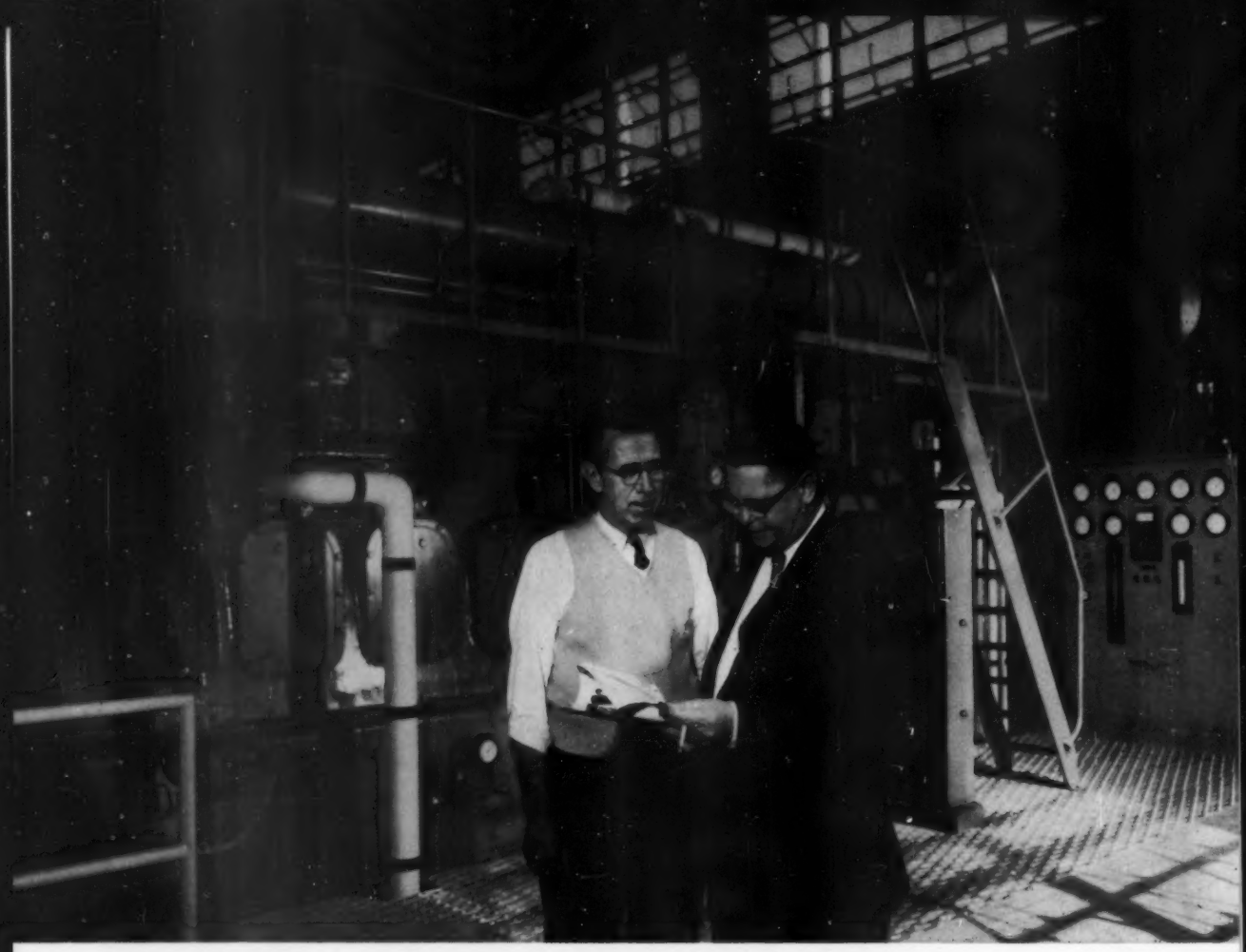
O'Brien MANUFACTURING CORPORATION
Dept. AC 1059 • 5632 Northwest Highway, Chicago 46, Illinois



Robert Mathias, *Power Plant Superintendent (left), and* Arthur D. Caster, *Principal Engineer, Sewage Disposal, City of Cincinnati, discuss*

How to make taxpayer dollars do double duty

The latest word in sewage plants is the Mill Creek Sewage Works, soon to open in Cincinnati, Ohio. Designed by Havens & Emerson, Consulting Engineers, Cleveland, Ohio, this ultra-modern plant achieves a new high in efficiency of recovering useful energy from the plant's digester gas.

More "mileage" from Btu's. Playing a key part in the saving of taxpayer dollars are four Cooper-Bessemer engines which drive generators supplying the total electric power needs of the huge plant. Their fuel is gas, produced by the sewage digesters. And thrift doesn't stop here! Btu's from the exhaust and water jacket of each engine are captured and piped to the digesters to activate the sludge, and help produce more gas fuel! Over-all thermal efficiency of the system is 80%, compared to a normal 40% on units without heat recovery.

The Cooper-Bessemer engines are dual-fuel, turbo-charged type LS-8-GDT, rated 1910 hp at 327 rpm. Each is equipped with an En-Tronic control to provide full automatic protection, and changeover from gas to fuel oil in event of low gas supply.

Find out how Cooper-Bessemer can help *you* plan engine and compressor facilities for optimum economy! Call our nearest office for engineering assistance.

BRANCH OFFICES: Grove City • New York • Washington Gloucester • Chicago • Minneapolis • St. Louis • Kansas City Tulsa • New Orleans • Shreveport • Houston • Greggton • Dallas Odessa • Pampa • Casper • Seattle • San Francisco • Los Angeles

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Cooper-Bessemer, S.A... Chur, Switzerland • The Hague, Netherlands

Cooper Bessemer

GENERAL OFFICES: MOUNT VERNON, OHIO

ENGINES: GAS • DIESEL • GAS-DIESEL
COMPRESSORS: RECIPROCATING AND CENTRIFUGAL
ENGINE OR MOTOR DRIVEN

(Continued from page 177)

5. Rates were increased by 10% in 1954. Water use was not affected and no further adjustment is needed at present.
6. No charge is made for fire protection.

C. F. TEMME
Superintendent
Kirkwood Water Department
Kirkwood, Missouri

GRENADA, MISS.

Rates Per Month

Gallons	*Per 1000 Gallons*
First 2,000	(Minimum) $1.15
Next 5,000	.23
" 43,000	.23
Excess	.10

Outside city limits, rates are 25% additional.

Minimum Monthly Charges

For all meter sizes in city	$1.15
For all meter sizes outside city	1.45

Typical Monthly Costs

Gallons	*Cubic Feet*	*Charge*
3,000	400	$1.45
5,000	667	1.90
10,000	1,333	3.14

General Data

Population served	9,250
Miles of mains	21
Services (100% metered):	Total of 2,532
Supply—4 wells	
Treatment—Chlorination only	
Plant capacity	2.9 mgd
Average demand	.8 mgd

Remarks

1. Utility provides service line to meter, which is at curb line, or in a few cases at the property line.
2. Utility provides the cost of new main extensions in city. Consumers pay entire cost of new mains outside of city.
3. Sewer services are operated by the Grenada Water Department and a charge amounting to 25% of the water bill is made.
4. Burroughs Sensimatic equipment is used in billing.
5. The present water rates have been in effect since 1930 or earlier. Sewer service charges were added in 1952. A rate increase may be needed in the near future.
6. No fire protection charge is made for private fire hydrants or sprinkler systems. The Water Department buys and installs all fire hydrants, except private hydrants, and does not charge the city a fee.

H. B. WEST
Superintendent
Grenada Water Department
Grenada, Mississippi

MOBILE, ALA.

Rates Per Month

Gallons	*Per 1,000 Gallons*
First 25,000	$0.60
Next 25,000	.55
" 25,000	.50
" 25,000	.40
" 400,000	.35
" 500,000	.30
" 1,000,000	.25
" 1,000,000	.20
Excess	.16

Industrial rate: 1 million gallons per day or more average consumption for the monthly billing period—12c per 1,000 gallons.

Outside city limits, rates are 25% higher.

Minimum Monthly Charges

Meter Size (in inches)	*Charge*
¾	$ 2.40
1	4.00
2	16.00
3	32.00
4	56.00
6	80.00
8	120.00
10	160.00
12	240.00

Fire Protection

First 3 hydrants	$75.00 each per annum
Next 3 hydrants	60.00 each per annum
Next 3 hydrants	40.00 each per annum
Excess	35.00 each per annum

Sprinkler Heads

First 500 or less	$100.00 per annum
Next 1,000	.06 each per annum
Next 1,500	.04 each per annum

Typical Monthly Costs

Gallons	*Cubic Feet*	*Charge*
3,000	400	(Min) $2.40
5,000	667	3.00
10,000	1,333	6.00

General Data

Population served	185,000
Miles of mains	(Approx.) 950
Services (100% metered):	Total of 39,000
Supply—Surface	
Treatment—Lime, alum, chlorine, filtration	
Plant capacity	30 mgd
Average demand	19 mgd

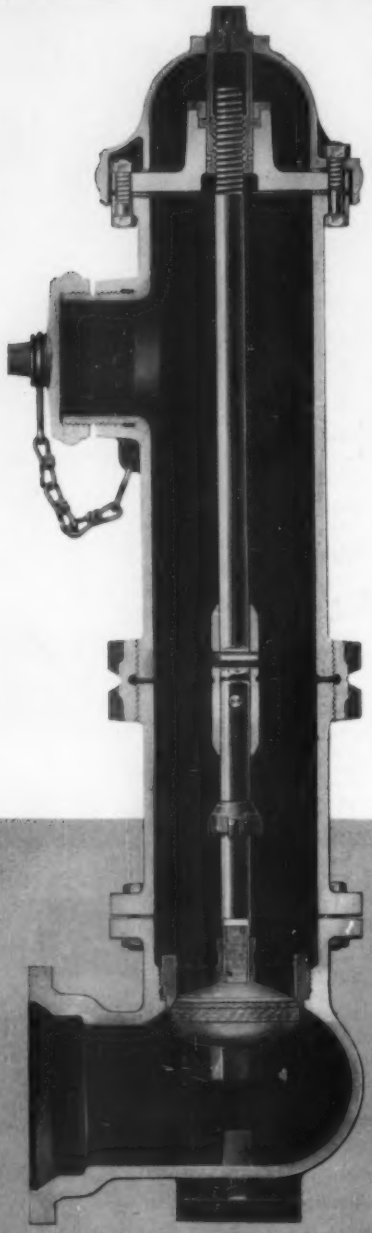
Remarks

1. Utility provides service lines to property only.
2. Utility provides costs of new trunklines only. Developers pay cost of new main extensions and are refunded 30% of water revenue in the subdivision for 10 years. The period is extended to 16 years if the developer installs sewers as well as water mains. However, no refunds are made to developers outside city limits.
3. The Mobile Water Service System operates both water and sewer services, and the water rates are charged to provide the operation and maintenance of both services.
4. Water rates were increased 60% in

(Continued on page 181)

Here's an invitation from the makers of Calmet, the world's only all-bronze, split-case frost-proof water meter:
Join us at the Joint Convention of the Alabama-Mississippi-Southwest Sections, American Water Works Association, October 18 through 21, 1959. It's bound to be the biggest yet!
We hope we can help make it a *memorable* occasion.
Socialize with us at the Texas Suite and see Calmet Meters on display at Booth 25, International Room, the Roosevelt Hotel in New Orleans. We'll be waiting to welcome you!

WORTHINGTON
CALMET METER DIVISION
2301 SO. MAIN
FORT WORTH, TEXAS



KENNEDY'S NEW
K-11 FIRE HYDRANT

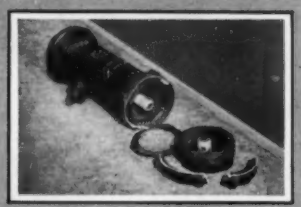
KENNEDY'S NEW K-11 FIRE HYDRANT

The, new improved model of the famous Safetop Hydrant with Safety Breakable Section

KENNEDY'S new K-11 Fire Hydrant is the completely redesigned model of the famous Safetop Hydrant with the Safety Breakable Section which provides lower maintenance and installation costs.

It is a new concept in fire hydrant construction and combines these features: a minimum number of parts; all operating parts readily accessible without excavation; "O" Ring seals, a weather seal, a pressure seal; straight thread seat ring; certainty of drainage to prevent freezing after use; simple, positive operation; minimum friction loss.

How the Safety Breakable Section Works:



The K-11 after smashing impact has broken it off at breaking ring. Note clean rupture of both standpipe and stem at absence of flooding.

Collision repair parts and the compact package. One man, with regular tools, can put the hydrant back in service in minutes and cut repair costs by 80%.

While the Section will withstand any ordinary impact, when struck with enough force, both the standpipe breaking ring and stem coupling break cleanly at the Section. The entire top section is dislodged from the ground standpipe without injury to the major and costlier parts.

The K-11 conforms to A.W.W.A. specifications and is available in 3 sizes: 4, 4½ and 5 inch and in a wide variety of pipe end connections.

Write for details in new Bulletin No. 591.

KENNEDY VALVE MFG. CO.

ELMIRA, NEW YORK

• OFFICE AND WAREHOUSES IN PRINCIPAL CITIES

DUCTILE IRON VALVES • CAST IRON VALVES • BRONZE VALVES • INDICATOR POSTS • FIRE HYDRANTS

(Continued from page 179)

November 1957. Water use was affected slightly. Further adjustment is not needed at present.

E. M. STICKNEY
Superintendent
Mobile Water Service System
Mobile, Alabama

PALO ALTO, CALIF.

Rates Per Month
(Inside City)

Cubic Feet	*Per 100 Cubic Feet*
First 1,000	$0.27
Next 8,000	.24
" 36,000	.22
Excess	.20

Rates Per Month
(Outside City)

Cubic Feet	*Per 100 Cubic Feet*
First 500	$0.37
Next 8,500	.31
" 36,000	.22
Excess	.25

Minimum Monthly Charges

Meter Size (in inches)	*Charge In City*	*Outside*
⅝	$ 1.35	$ 1.85
¾	1.60	2.05
1	2.15	3.10
1½	3.90	5.40
2	5.10	7.45
3	7.50	9.60
4	12.30	15.80
6	24.60	31.60

Fire Protection
Fire service, per fire hydrant ..... $1.50 per month

Typical Monthly Costs

Gallons	*Cubic Feet*	*Charge*
3,000	400 (Minimum)	$1.35
5,000	667	1.80
10,000	1,333	3.50

General Data
Population served 53,725
Miles of mains 170
Services (100% *metered*): Total of 17,433
Supply—Local wells plus Hetch Hetchy Aqueduct.
Treatment—Disinfection, fluoridation, polyphosphate.
Plant capacity ..... (peak) 60 mgd
Average demand ..... 10 mgd

Remarks
1. The utility provides service lines to property only.
2. The utility provides none of the cost of new main extensions.
3. The Water-Gas-Sewer Department of Palo Alto operates and bills for both water and sewer services.
4. Burroughs equipment is used for automatic billing.
5. Water rates were increased by 25% in 1951. Water use was not affected, and no further adjustment is needed at present.

HAROLD L. MAY
Chief Engineer
Water-Sewer-Gas Department
Palo Alto, Calif.

TULAROSA, N. M.

Rates Per Month

Gallons	*Per 1000 Gallons In City*	*Outside*
First 8,000	$4.00 (Min.)	$5.00 (Min.)
Excess	.20	.20

Minimum Monthly Charges

	In City	*Outside*
For all meter sizes	$4.00	$5.00

Typical Monthly Costs

Gallons	*Cubic Feet*	*Charge In City*	*Outside*
3,000	400	$4.00 (Min.)	$5.00 (Min.)
5,000	667	$4.00	$5.00
10,000	1,333	4.40	5.40

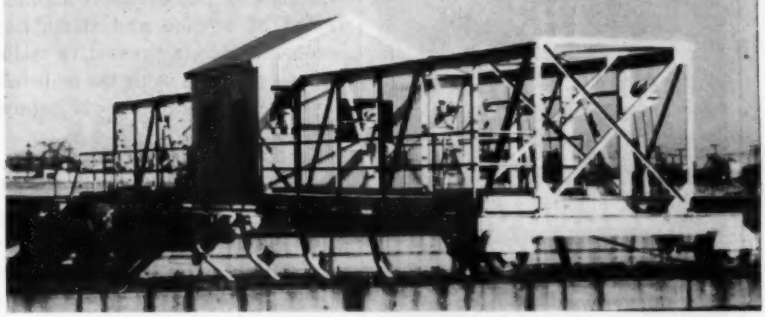
(Continued on page 183)

KOMLINE-SANDERSON
RECTANGU-LINE
SLUDGE COLLECTORS

• No machinery or mechanical parts under water • Trouble free • Exceptionally low maintenance • Provides sludge scraping and skimming • Self-propelled traveling bridge type structure • Variable speeds attainable • No skewing or crabbing of machine on rails • No cables to pull units.

Another dependable piece of equipment added to the Komline-Sanderson line of quality equipment.

KOMLINE-SANDERSON ENGINEERING CORPORATION
PEAPACK, NEW JERSEY



HEAVY-DUTY
ELLIS PIPE CUTTER
FOR CUTTING LARGE SIZE PIPE

Drop-Forged Frame and Links

Long-Lasting Cutter Wheels

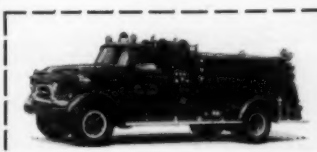
Makes a Hit With Water Works Men

Cuts Pipe In or Out of Ditch

TWO SIZES
No. 01 for 4" to 8" Pipe
No. 1 for 4" to 12" Pipe
Write for Circular and Price List No. 41AC

ELLIS & FORD MFG. CO.
P. O. BOX 308
BIRMINGHAM, MICHIGAN

Champion Fire Apparatus
W. S. DARLEY & CO.
CHICAGO 12



Major new development

THE CLOROBEN UP-SEWER CHEMICAL ROTATION METHOD

(U. S. Patent Applied For)

Here is an entirely new and remarkably effective way to eliminate conditions in sewage collection systems that cause local odor and grease problems, and which also adversely affect final treatments.

With the Cloroben Up-Sewer Rotation Method, accumulated grease deposits and slime formations are dissolved; high sulfide production eliminated.

The Cloroben Up-Sewer Rotation Method consists of two major steps. First a shock treatment of isolated local areas where excessive accumulation of grease and slime has occurred. Then, a preventive maintenance program using the principle of periodic shock dosing of local up-sewer lines.

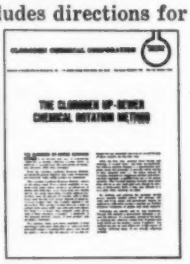
By shifting and rotating the up-sewer dosing points, laterals, branch sewers, lift stations, wet wells and force mains will periodically receive an application sufficient to prevent any further excessive formation of grease and slime deposits.

Up-sewer treatment using the Cloroben Rotation Method gives any sewage collection system the same proven benefits enjoyed by many cities now using Cloroben. Cloroben dissolves accumulated grease and slime deposits in sewer lines, lift stations, wet wells, and force mains.

With Cloroben, sulfides are suppressed and odors eliminated. Roaches and mosquito larvae are killed. Corrosion of metal, brick and mortar is inhibited with resultant savings in labor and other maintenance cost.

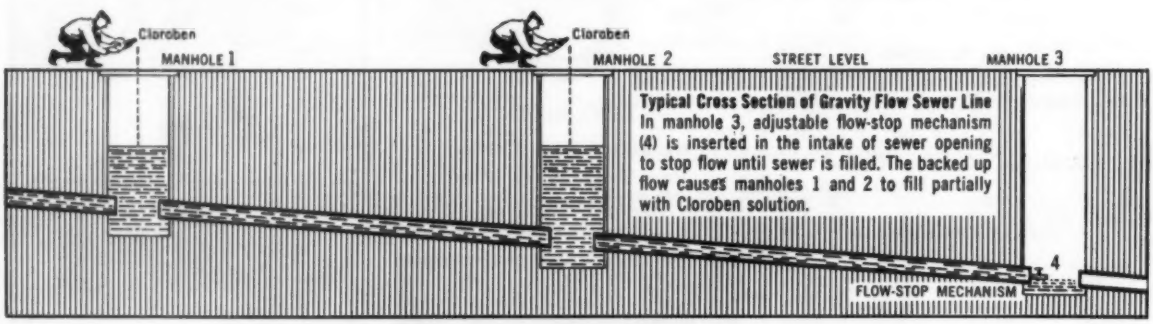
The Cloroben Up-Sewer Rotation Method will assure the delivery of a non-septic, stabilized influent to the final treatment plant.

FREE: Technical bulletin, just prepared, gives complete facts about Cloroben Up-Sewer Chemical Rotation Method, includes directions for odor and grease control, cleaning of wet wells, force mains and sewer lines. Write for your copy, without obligation.



CLOROBEN CHEMICAL CORPORATION

115 Jacobus Avenue
South Kearny, New Jersey
Subsidiary of
Standard Chlorine Chemical Co., Inc.
New Jersey: Mitchell 2-1703
New York: Barclay 7-4443


Cloroben
MANHOLE 1
Cloroben
MANHOLE 2
STREET LEVEL
MANHOLE 3
Typical Cross Section of Gravity Flow Sewer Line
In manhole 3, adjustable flow-stop mechanism (4) is inserted in the intake of sewer opening to stop flow until sewer is filled. The backed up flow causes manholes 1 and 2 to fill partially with Cloroben solution.
4
FLOW-STOP MECHANISM

DESIRABLE DISTRIBUTORSHIPS STILL AVAILABLE

(Continued from page 181)

General Data

Population served	3,500
Miles of mains	19
Services (100% *metered*):	
Domestic	906
Commercial	41

Supply—Ground and surface
Treatment—Surface is filtered and chlorinated; ground water is pumped directly into the distribution system.

Plant capacity	(surface)	.720 mgd
	(ground)	.500 mgd
Average demand		.350 mgd

Remarks

1. The utility provides service lines to property only.
2. The utility provides none of the cost of new main extensions.
3. The Water and Sewer Departments are combined under one superintendent. Sewer services are charged for.
4. Olivetti automatic equipment is used in billing.
5. The minimum rate was increased 25% and the rate for excess water was doubled on January 1st, 1959.
6. Tularosa makes no charge for fire protection.

FRANK THOMPSON
Water and Sewer Superintendent
Water and Sewer Departments
Village of Tularosa, N. M.

WATERBURY, CONN.

Rates Per Quarter

Cubic Feet	*Per 100 Cubic Feet*
First 250,000	$0.195
Next 750,000	.15
Excess	.08

Minimum Quarterly Charges

Meter Size (in inches)	*Allowance (in cubic feet)*	*Charge*
⅝	1,600	$ 3.75
¾	2,000	5.00
1	2,400	6.25
1½	8,000	18.75
2	12,800	30.00
3	18,900	46.88
4	40,050	93.75
6	80,000	187.50
8	128,200	300.00

Service Charges*

Meter Size	*Charge*
⅝	$ 0.63
¾	1.13
1	1.63
1½	3.13
2	5.00
3	10.00
4	15.63
6	31.25
8	50.00

* This charge is included in the minimum.

Fire Protection

	Annual Charge Per Head
Sprinkler Heads	
First 100	$0.12½
Excess	.6¼
Fire-Hose Openings in Standpipes	*Annual Charge Per Opening*
Up to 2½ inches	$2.50
2½ inches and larger	4.40
Private Hydrants (annual charge for each)	$31.25

Typical Quarterly Costs

Gallons	*Cubic Feet*	*Charge*
9,000	1,200	$ 3.75
15,000	2,000	4.53
30,000	4,000	8.43

General Data

Population served	110,400
Miles of mains	239

Services	*Number*	*% Metered*
Domestic	17,805	97.32
Commercial	2,136	90.31
Other	4	100.00

Supply—Reservoirs
Treatment—Chlorination and addition of lime for pH control

Plant capacity	5,000 mgd
Average demand	14 mgd

Remarks

1. Cost of service lines is paid by the user.
2. The city pays the entire cost of main extensions in new subdivisions within city limits.
3. The Department of Water does not operate or bill for sewer services.
4. In billing, IBM automatic equipment is used.
5. Water rates were increased by 25% in 1950. No further adjustment is needed.

EDGAR R. SANCHEZ
Accountant-Auditor
Department of Water
Waterbury, Connecticut

WILMINGTON, DEL.

Rates Per Quarter

Cubic Feet	*Per 100 Cubic Feet*
First 2,500	$0.21
Next 2,500	.13
Excess	.11

Outside city limits these rates are doubled.

Minimum Charges (Per Annum)

Meter Size (in inches)	*Charge*
⅝	$ 21.00*
¾	32.00
1	42.00
1½	63.00
2	84.00
3	105.00
4	126.00
6	168.00
8	315.00
10	525.00

* This rate applies to properties supplied through a ⅝-inch meter except those having not over two ½-inch outlets, in which case a minimum of $11 a year is charged, for which amount 1310 cubic feet of water per quarter is allowed.

(Continued on page 185)

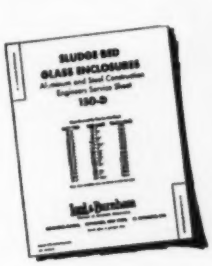
Glass Covers
FOR
SEWAGE TREATMENT PLANTS

LIFETIME ALUMINUM CONSTRUCTION

Now available in lifetime aluminum construction with supporting steel framework. For sludge beds, sprinkling filters, tanks or wherever a glass cover is needed.

WRITE FOR NEW VALUABLE ENGINEERS' SERVICE SHEETS

Write today for your new set of Engineers' Service Sheets AC-1059 containing details, specifications and recommendations for every job request.



Lord & Burnham
DIVISION OF BURNHAM CORPORATION
IRVINGTON, N. Y. DES PLAINES, ILL.

No weather problems this winter —if you plan now...

PASS PIPE THROUGH PIPE UNDERGROUND

with Inner Circles

PRECAST REINFORCED CONCRETE TUNNEL PIPE

Worker guides an oval-shaped section of Inner Circles pipe which the Tunnelugger has carried through the conduit already laid.

Avoid the hampering effects of winter weather on outdoor construction by *working underground. Plan now* to utilize the Inner-Circles Method of building new sewers (left) and relining failing sewers (above) *this winter.*

Extensive surface excavation and back-fill eliminated • Reduced equipment and labor • Faster completion at *lower cost* • Overhead traffic undisturbed • Improved hydraulics • Pretested pipe strengths • Tight joints—even on sharp curves • Installation equipment furnished.

The two-way Tunnelugger can operate in either direction from a centrally operated shaft—quickly delivering and positioning elliptical sections through conduit already laid.

Inner Circles are the *most economical* method of installing tunnels in stable soils and on mild slopes. For more complete information write for an opinion by our experienced technical staff.

AMERICAN-MARIETTA COMPANY
CONCRETE PRODUCTS DIVISION
GENERAL OFFICES:
AMERICAN-MARIETTA BUILDING
101 EAST ONTARIO STREET, CHICAGO 11, ILLINOIS, PHONE: WHITEHALL 4-5600

(Continued from page 183)

Typical Quarterly Costs

Gallons	*Cubic Feet*	*Charge*
9,000	1,200	$2.52*
15,000	2,000	4.20*
30,000	4,000	7.20

* Provided annual amount accumulates to $21 (see Minimum Charges above).

General Data

Population served 140,000
Miles of mains 279.6
Services (100% *metered*):
Domestic 36,272
Commercial 1,218
Supply—Surface (stream)
Treatment—Sedimentation, filtration, and sterilization.
Plant capacity .....44 mgd
Average demand .....24 mgd

Remarks

1. Utility provides service line and meter in city; outside all these are at expense of developer.
2. Utility provides the cost of new mains in city.
3. The Wilmington Water Department does not install sewer services but it bills for them in rural districts.
4. Billing is done on Addressograph automatic billing equipment.
5. Water rates were increased in 1959.

W. COMPTON WILLS
Manager and Chief Engineer
Wilmington Water Department
Wilmington, Delaware

WINOOSKI, VT.

Rates Per Quarter

Cubic Feet	*Per 100 Cubic Feet*
First 12,000	$0.40
Next 6,000	.35
" 12,000	.30
Excess	.26

Minimum Quarterly Charges

For all meter sizes $4.00

Typical Quarterly Costs

Gallons	*Cubic Feet*	*Charge*
9,000	1,200	$4.80
15,000	2,000	8.00
30,000	4,000	16.00

General Data

Population served 7,000
Miles of mains 17

Services	*Number*	*% Metered*
Domestic	1,300	98
Commercial	10	100
Other	None	None

Supply—Deep wells and rain water
Treatment—Filtration and chlorination
Plant capacity .....1½ mgd
Average demand ..... ½ mgd

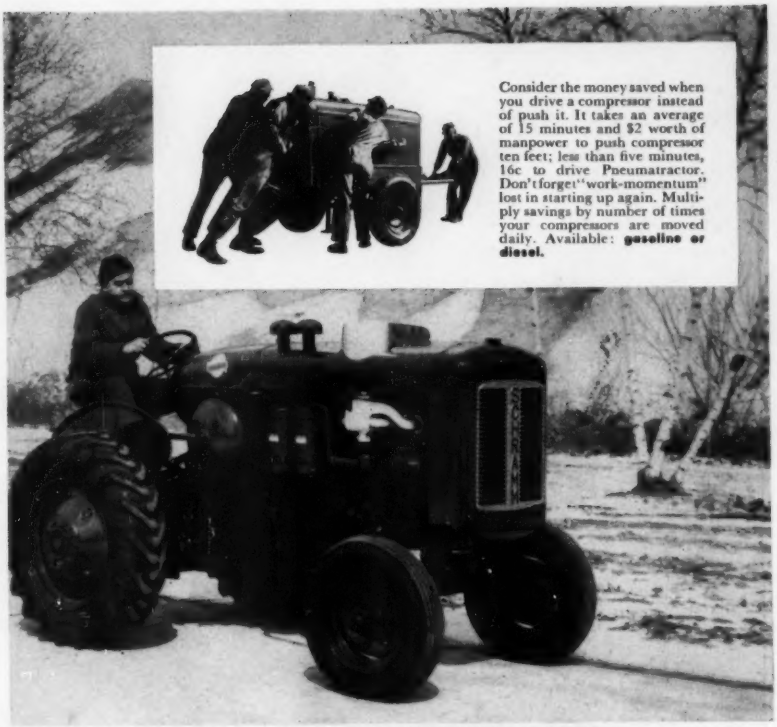
Remarks

1. The Water Department provides service lines to property only.
2. The Water Department provides none of the cost of new main extensions.
3. There is no charge for sewer services. The Water Department does not operate services.
4. Automatic billing equipment is not used.
5. Water rates were last revised in 1957 when they were increased by 50%. Water use was not affected by the rate increase and no further adjustment is needed.

ALBERT J. GARROW
Chief Clerk
City of Winooski Water Dept.
Winooski, Vermont

Freeway Accidents

The number one cause of Freeway accidents in the Los Angeles area, reports the Greater Los Angeles Safety Council, is following too close.



Consider the money saved when you drive a compressor instead of push it. It takes an average of 15 minutes and $2 worth of manpower to push compressor ten feet; less than five minutes, 16c to drive Pneumatractor. Don't forget "work-momentum" lost in starting up again. Multiply savings by number of times your compressors are moved daily. Available: **gasoline or diesel.**

IF YOU WANT TO CONSERVE MANPOWER COSTS:

Drive your compressor, don't push it!

Here's the smart, money-saving way to use air compressors on any municipal project . . . drive your air source to the job and along with the work. Saves valuable time, keeps manpower on the "paying" jobs. Schramm Heavy Pneumatractor—self-propelled air compressor—saves you money other ways, too, because it's an all purpose machine . . . will never stand idle. You can not only operate air tools, but also load, break-out concrete, trench, grade—no end to the jobs you can do. Yet Pneumatractor still costs much less then the cost of a tractor, loader, backhoe *and* air compressor.

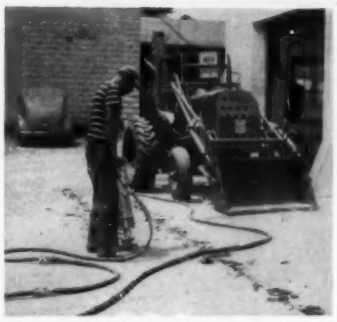
Schramm Heavy Pneumatractor is a versatile combination of . . .

Air Compressor Supplies 125 cfm of air at 100 psi. Contains the same valuable operational features as highly regarded Schramm Portable Air Compressors. Constructed of same enbloc piston design—the only design which can offer self-propulsion.

and Tractor A heavy, rugged unit, strong enough to carry equipment not usually found on ordinary wheel tractors. Accessories include: front end loader, back-hoe, winch, snow plow, sweeper, angle dozer blade, post hole digger—and many others.

Learn today what other benefits Pneumatractor can offer you. See your local Schramm Dealer, or write for your copy of Catalog 5740.

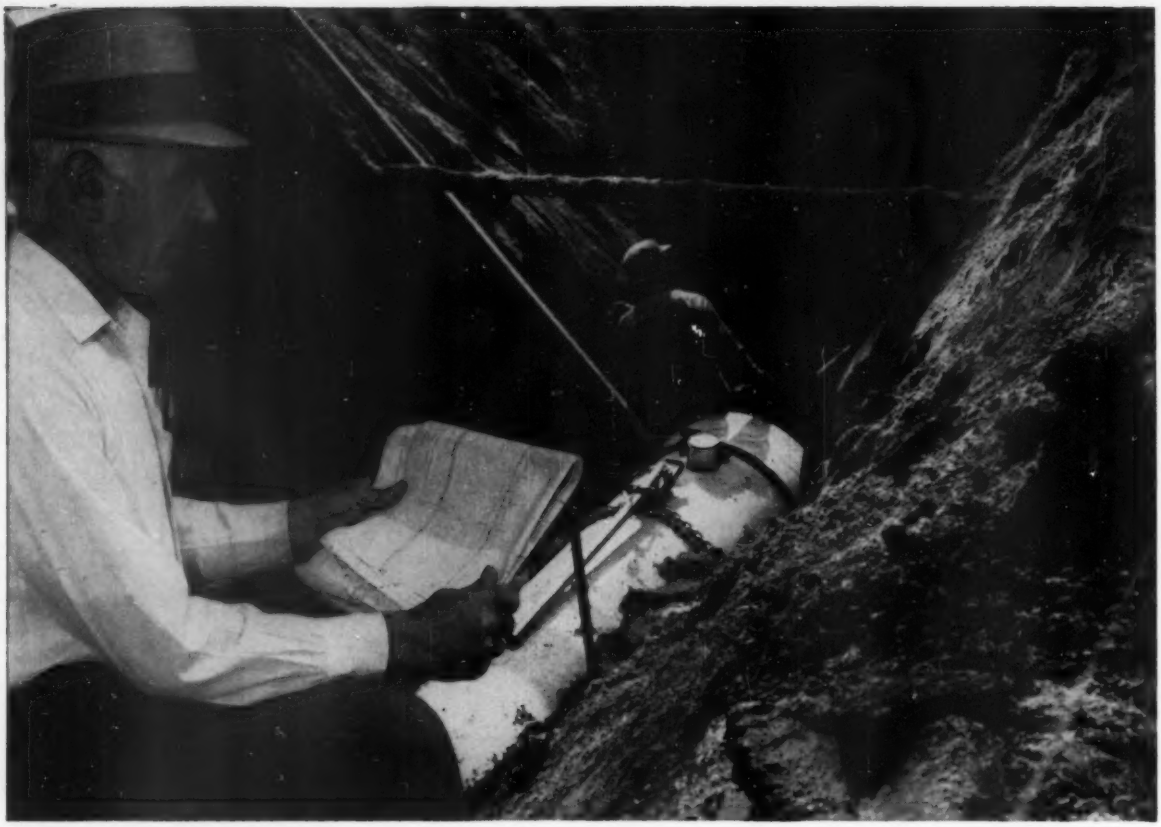
See the Yellow Pages for local Sales, Service and Rental of the complete line of Schramm Pneumatractors.



Schramm Air Tools—the tools with extra *guts*. More drop forgings are used in Schramm tools than in other lines. Result: greater strength and resistance to breakage.

There's no end to the jobs Pneumatractor can do. Here, tilting angle blade is used for gutter and shoulder grading.

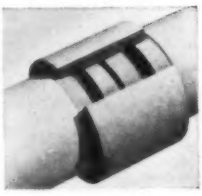
Schramm, Inc.
MANUFACTURERS OF AIR COMPRESSORS
603 North Garfield Ave. • West Chester, Pa.



"Not a 'comeback' in 18 years" ...with Transite Sewer Pipe

says Anthony Garcia, President
Allerton Construction Co., New York

"In my eighteen years of installing Transite sewer mains and house laterals, I have never had a 'comeback' because of line failures. Most of the installations have been 100% under water. Therefore, tight joints that stay tight are absolutely essential! For these reasons Transite has always been my choice for sewer line service. I never worry about passing leakage or infiltration tests. I play it safe —with Transite."



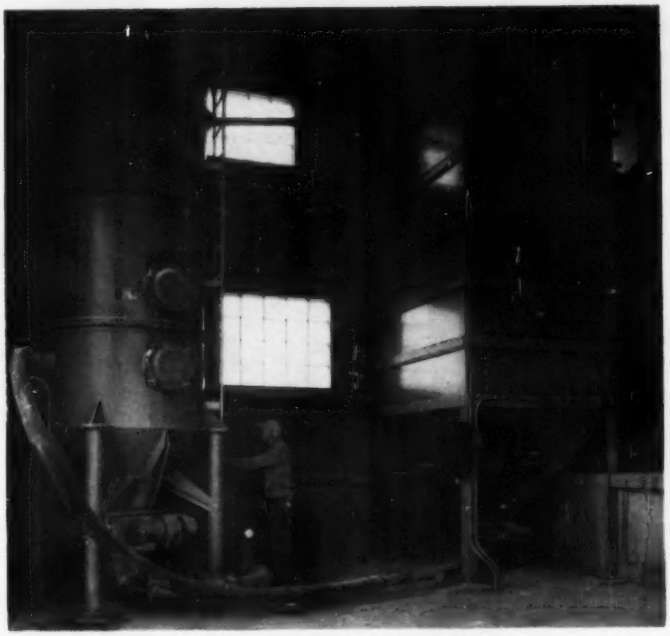
You'll want to read how Johns-Manville Transite® Pipe has helped other contractors increase their profits and productivity . . . in the informative and interesting new, 8-page booklet, TR-206A. Send for it now! Address Johns-Manville, Box 14, New York 16, New York. In Canada, Port Credit, Ontario.

JOHNS-MANVILLE JOHNS-MANVILLE JM PRODUCTS

The Archbold, Ohio water plant, although small, takes advantage of bulk purchasing of lime, handling the material with a pneumatic conveying system.

Plant Size No Deterrent to Bulk Chemical Handling

Small Ohio water plant utilizes cost-saving features on pneumatic conveyor system



The air conveyor receiving station and storage bin form a compact installation. Space between the units can accommodate an additional storage bin if needed.

When the City of Archbold, Ohio (population 1,486) enlarged its water treatment plant, the local officials debunked the idea that air conveying of dry chemicals is restricted to big plants with large bulk-handling requirements. Although the plant uses but one truck load of bulk lime every six to eight weeks, one operator handles it efficiently and economically with a Dracco Airstream Conveyor. Economies include reduced labor costs and a savings in the cost of lime through bulk purchasing.

This complete, self-contained conveying system moves lime at 8 to 10 tons per hour, performs three separate handling functions and includes a 30-ton capacity storage bin. The total cost of the bulk handling and storage system came to less than $25,000.

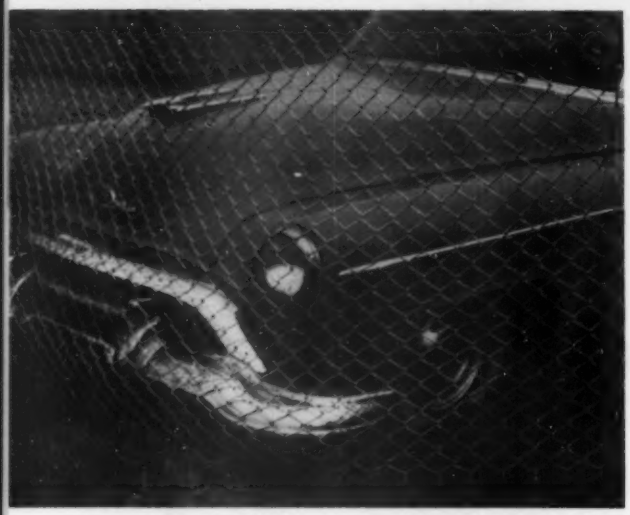
The suction-pressure type conveyor is fully integrated with both the old and new portions of the plant for maximum performance versatility. It moves lime from truck to storage, from storage to day bin, and from truck to day bin. One man readily performs these operations.

A flexible metal hose, equipped with a portable intake nozzle, is used to unload the truck. Material moves to the receiving station by suction, through an air-locked discharge mechanism and into a flexible pressure line leading to the storage bin inlet pipe.

The operator merely switches the flexible pressure line to another pipe line to move lime from storage to the day bin. In this operation material is drawn back to the receiving station and then blown to the day bin located in another part of the plant. Quick disconnect couplings on flexible hoses simplify flow changes for the operator.

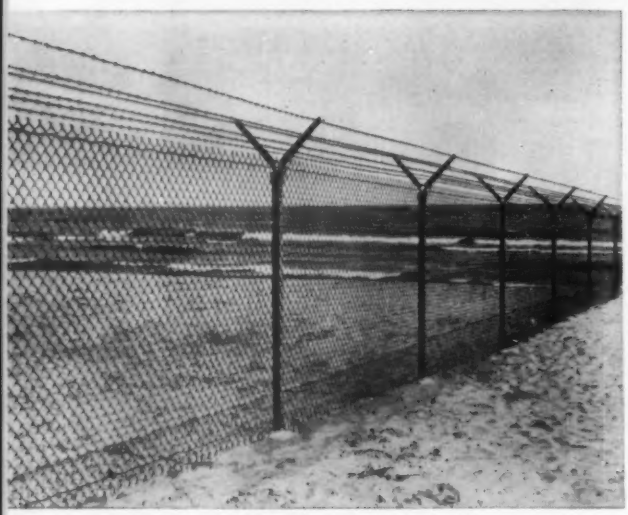
Because of the relatively small amount of material handled by the system, manual damping controls and blast gates are used. All bin loading operations are vented by a bag-type dust collector, with collected material returned to the conveyor system to avoid waste, in-plant dust and external air pollution.

Tests Prove USS Cyclone Steel Fence Quality

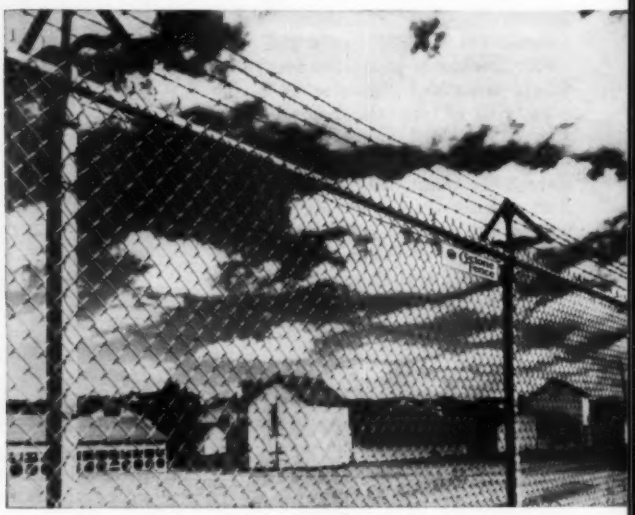


Impact Test. A 4000-pound car, traveling at 35 miles per hour, was driven directly into a panel of Cyclone Chain Link Fence Fabric. The car was stopped. The fence did not break or fail—proof that Cyclone Steel Fence has the strength to withstand severe impact.

Fire Test. This raging fire was deliberately set to test the heat resistance of Cyclone Steel Fence . . . and that rugged steel fabric did not melt or fail. Should a grass or trash fire break out too close to a Cyclone Fence, there will be no damage.



Corrosion Test. More than 10 years ago this panel of Cyclone Steel Fence was installed 45 feet from the ocean. Even in this extremely corrosive atmosphere it is still strong and serviceable. Cyclone Fence owes its unusual corrosion resistance to its heavy coating of zinc.



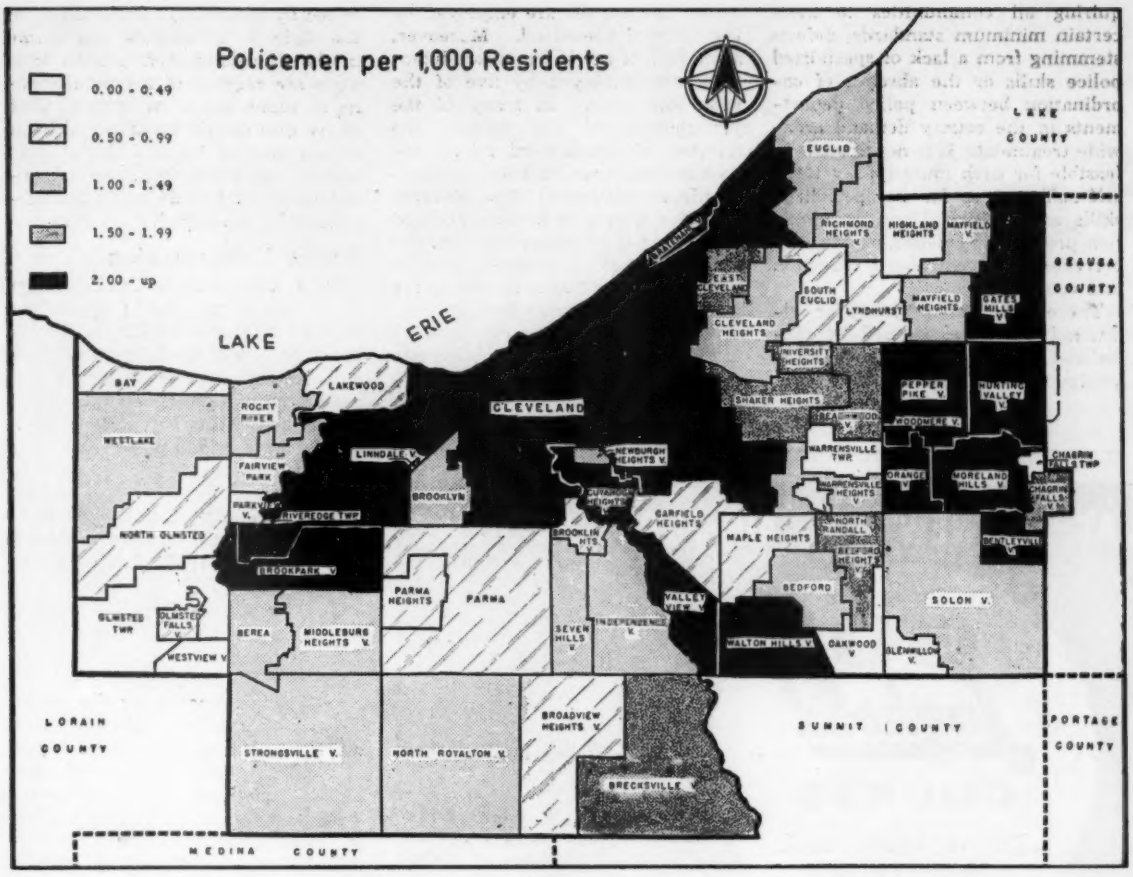
Time Test. The fence shown here is a 25-year-old Cyclone veteran . . . still giving good service. Once Cyclone Fence is properly installed, it requires almost no maintenance. It continues to give good service, year after year.

For additional information on USS Cyclone Fence, write to Cyclone Fence, American Steel & Wire, 614 Superior Avenue, N.W., Cleveland 13, Ohio.

USS and Cyclone are registered trademarks

Cyclone Fence Dept.
American Steel & Wire
Division of
United States Steel

Waukegan, Illinois, Sales Offices Coast to Coast
United States Steel Export Company, Distributors Abroad



Police Services In Cuyahoga County

A study by the Cleveland Metropolitan Services Commission of the inter-governmental and area-wide problems in the field of police protection*

Traditionally, the resident of the small community is happy about his ability to be on a first name basis with the handful of men who make up the police force. In contrast, the big-city police department is per se assumed to be corrupt and inefficient—in fact, the epitome of all the drawbacks that are associated with bigness in government. Any serious proposals in the direction of consolidation can be expected to bring forth considerable protest from local citizens and local policemen alike.

There are in Cuyahoga County sixty-four separate agencies which, in varying degrees, perform police functions. These include fifty-eight city and village police departments, two sets of elected constables in townships, the Metropolitan Park Police, and the offices of the county coroner, the county prosecutor, and the county sheriff.

In size and complexity, the police departments range from the City of Cleveland with more than 1,900 full-time policemen to a village whose single policeman holds down a day-time job more than 15 miles from his home community. Cleveland has 303 radio cars. A township (ten square miles in area) purchased its lone patrol car with the proceeds of a benefit dance and voluntary contributions from its residents.

With nearly 60% of the population of the county and almost 80% of the major crime, the City of Cleveland obviously dominates the law enforcement picture in personnel and expenditures. The twenty-one suburban city police departments have a total strength of 588 full-time and 40 part-time personnel with an area amounting to over 140 square miles and containing a population of 575,000.

While weaknesses in basic police protection can be mitigated by re-

* The report was prepared by a Study Group consisting of police officials, mayors, and government leaders under the chairmanship of Mr. Oliver Schroeder, Jr., Director of the Law-Medicine Center in Cleveland. Staff work was by Dr. Richard A. Watson of the Metro staff.

quiring all communities to meet certain minimum standards, defects stemming from a lack of specialized police skills or the absence of coordination between police departments in the county demand area-wide treatment. It is not financially feasible for each municipality to be self-sufficient as far as specialized skills are concerned and coordination problems by definition must be corrected by centralized direction and control.

There is a clear-cut need for additional personnel trained in specialized techniques of criminal investigation. Of the 315 detectives in the county, 260 are employed by the City of Cleveland. Moreover, some 80% of the 55 suburban detectives are employed by five of the suburban cities. In many of the jurisdictions of the county, the number of complicated felony investigations is not sufficient to justify the establishment of a separate detective agency in each department nor would it be possible to provide the continual in-service training and experience that is necessary for such specialized personnel.

What is needed is a criminal investigation unit with an adequate staff of trained investigators, established by the county. It should have the right to investigate any crime in the Cleveland metropolitan area *upon the request* of the municipality in which the crime occurs. Cost of the unit should be defrayed from county general funds with the provision that methods of partial reimbursement by the using municipalities be developed.

Crime Laboratories

Most communities in Cuyahoga County are completely dependent on the facilities of the City of Cleveland or a few of the larger suburban city departments for all except the most rudimentary examinations. Consequently another need is for a county scientific investigation unit with services available, on request, to all police departments, and it should be equipped to handle most of the major investigative problems that require special laboratory analysis.

The 58 municipal police departments of Cuyahoga County carry on 58 separate record-keeping agencies. Although there are informal arrangements for the interchange of information, such as in the field of auto theft, there is not a comprehensive program of records exchange. A metropolitan records bureau should be established in conjunction with the county criminal investigation unit. To insure completeness of the records, all jurisdictions should be *required* to furnish complete information on arrests, wanted and missing persons, and stolen property. This bureau would help meet the need for an interchange of information among all the police agencies in the county.

Police communications in the county are excellent. For all practical purposes, radio communications have been metropolitanized through the development of cooperative arrangements among the various departments concerned. The use of base stations of larger communities gives even the smallest department in the county three-way communication (station to car, car to station, car to car). In addition, the development of an "all car" system enables all police units in the county to be reached from a central control point and allows cars on different radio frequencies to contact each other in emergencies. This has a profound impact on police work, particularly in the area of auto thefts. The development of the system, used for the first time in the nation here in Cleveland, reflects credit on local

Here at the U. S. Air Force Academy the firm of Malott & Peterson-Grundy of San Francisco is building sixty Laykold courts.

"Modern Design" is the keyword in construction at the new United States Air Force Academy currently under construction at Colorado Springs, Colorado.

Modern design was an important factor, too, in the selection of Laykold Courts at this new service school. Other factors that influenced the selection were: sound multiple-layer construction; all-weather playability; universal player acceptance; minimum maintenance; and competitive price position.

If these are the qualities you want in the courts for your home, club, school or park, get full details today. Just write our nearest office for your copy of "Laykold Tennis Courts," a full-color booklet. No charge, of course.

Leveling course in place over a portion of the court area.

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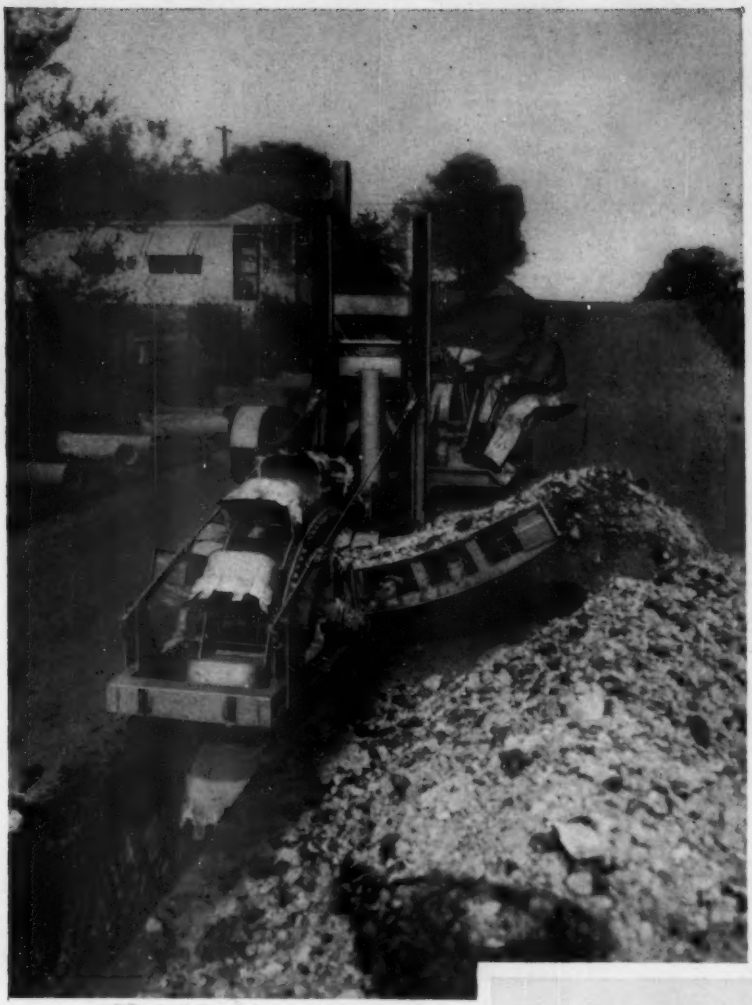

WAYS TO SPEED TRENCH PRODUCTION:

You get up to 25 feet of trench per minute with Parsons® wheel-type 150

For fast, low-cost installation of city pipelines, and on extension of mains and service lines into newly annexed areas, look into the big production capacity of this Parsons 150 wheel-type Trenchliner®. It digs from 12 inches to 25 lineal feet of trench per minute — 16 to 26 inches wide, at depths to 5¾ feet.

Hydraulic control raises and lowers the digging wheel on vertical mast — maintains close grade tolerance at any depth. A separate hydraulic ram tilts the mast — balances the wheel forward when traveling or trailer-loading. Self cleaning, cast-steel buckets are equipped with Parsons "Tap-In" teeth. Shiftable, reversible belt conveyor gives controlled discharge. Parsons 150 has 16-inch grouser-type shoes (street pads optional) or 12-inch flat-shoes. See Parsons distributor or write for 150 catalog. Smaller, larger wheel-type Trenchliners also available.

Little ladder-type 77 fits city clearances

It's only 3 feet-10 inches wide. Working height, with boom in digging position, is just 5 feet-8 inches. What's more, this little Parsons 77 Trenchliner only weighs about 6700 pounds.

Small in size but big in capacity, the 77 produces up to 21 lineal feet of trench per minute, 6 to 18 inches wide, at depths to 5 feet. Positive down-crowd boom starts cut fast — holds accurate grade. It undercuts walks, curbs, cross-pipes — makes vertical set-ins. Larger ladder-type Trenchliners also available. Check big Parsons line of Trenchliners for any trench requirement from 6 inches to 6 feet wide, up to 19 feet deep.

Mail to: PARSONS Company, Newton, Iowa

Send literature on: ☐ *150* ☐ *77 Trenchliner*

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CITY, STATE P917AC

PARSONS TRENCHLINERS *A division of Koehring Company*

Installed in 1909 — — Springfield's steel main is still on the job

Things have changed in the waterworks field since '09. But, as the photo shows, even then they were using large-diameter steel pipe in Springfield, Massachusetts.

This 42-in. lockbar steel main carries water some 22,000 ft from Provin Mountain Reservoir in West Springfield across the Connecticut River and into the City. Now in its fiftieth year, it is expected to give many more years of service. And in a half-century it has required very little maintenance.

Another major line, of 54-in. and 48-in. welded steel, with riveted joints, was laid between the reservoir and the city in 1928-1929. It's described as "in excellent shape" today.

The most recent tests indicated the H & W flow coefficients to be 111 for the 1909 line, 140 for the 1928-1929 line, and 143 for another steel line laid in 1949. According to the Municipal Water Works: "These tests showed that steel lines with proper coatings will give very long life as far as carrying capacity is concerned."

Scores of old steel mains are still in service throughout the nation. By present-day standards they were crudely constructed, inadequately protected. If they could give fifty or more years of steady, reliable service, think what today's steel pipe can do—lined and coated with modern coal-tar enamel.

Make your next main a *steel* main. The Bethlehem sales office nearest you will gladly give you full details on the advantages of steel pipe.

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communications and police officials.

Municipal police chiefs, clerks, law directors, mayors and managers report 81 police mutual aid contracts in Cuyahoga County However, only 46 of these agreements could be verified through agreement of both parties concerned on the existence of the contract. Of the 26 municipalities which participate in the verified contracts, only five are cities. The remaining 21 are villages.

Certain factors limit the effectiveness of the mutual aid device. Uncertainty concerning legal rights and immunities (pensions, protection against law suits, etc.) which apply to police operations outside a department's own boundaries impedes a more extensive adoption of the device. Some municipal solicitors believe policemen are protected wherever they go as law enforcement officers of the state, while others feel that they must enter into mutual aid agreements to guarantee this protection. There have been no legal rulings in Ohio on this point.

A committee on mutual aid contracts should be established through the cooperative efforts of the Association of Mayors and City Managers, the Cuyahoga Conference of Municipal Legislators, the County Solicitors' Association, and the Cuyahoga County Police Chiefs' Association. It is suggested that this committee be charged with (a) developing means for centralizing responsibility for the proper execution of mutual aid contracts; (b) developing an educational program on the utilization of mutual aid contracts; and (c) preparing a model mutual aid contract for the guidance of individual municipalities.

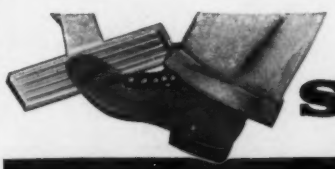
Limitations

While benefits will result from a strengthening of the mutual aid device, it has certain inherent limitations for police work. Many of the municipalities with larger police departments consider themselves fairly self-sufficient; they are not interested in entering into agreements with neighboring communities, particularly if they must furnish service gratis and assume the risk of their own personnel losses and equipment damage incurred in a municipality asking for aid. The mutual aid system holds most promise for cooperative police operations by village police departments.

Local traffic statistics show an upward trend in fatalities and a disproportionate number of fatalities and personal injury accidents occurring in the villages.

Improved programs, especially in the smaller cities, for other police specialty areas should recognize the need for meeting the deficiencies in local traffic enforcement, including: (a) criminal investigation—inclusion of persons with accident investigation training on the detective staff of this unit; (b) police records —development of a clearing house for traffic arrest records within the county records bureau; (c) training — improvement of traffic enforcement training in the existing police schools.

The availability of a central traffic records reference should facilitate the process of identifying chronic violators. Studies indicate that a relatively small proportion of the driving public—some 15%—is involved in a relatively high percentage of the accidents. Experience in other cities has indicated that dramatic improvements are possible in traffic safety records if special educational efforts are directed toward the chronic violator.



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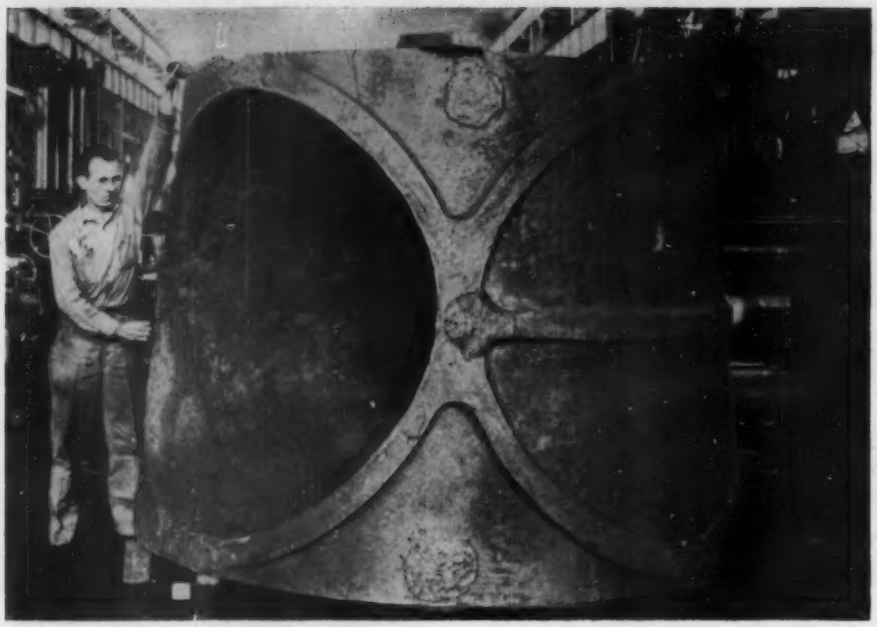


Key part of valves used to control water flow into Kensico Reservoir from Delaware Aqueduct tunnels is this huge conical plug weighing almost 10 tons.

A Special Metal for a Special Job

Stainless steel castings stand nine years of punishment in New York City's water system

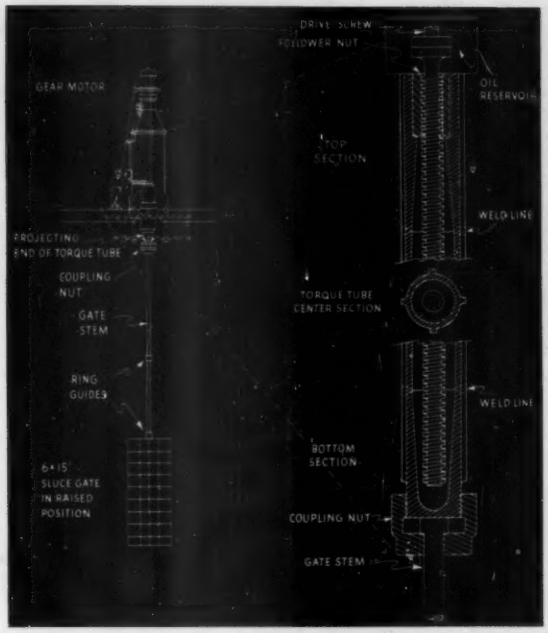
By **E. A. SCHOEFER**, Executive Vice President
Alloy Casting Institute, Garden City, N. Y.

Picture three valves, each weighing about 80,000 pounds, anchored in concrete 80 feet below ground; picture, too, a set of tubes more than a foot in diameter and more than 17 feet long poised vertically over open-water channels and arranged to move sluice gates against more than 100 tons of thrust. Run the entire supply of water for the world's largest city through this system and ask these components to perform unfailingly for decades. When engineers of the Board of Water Supply of the City of New York ran into these unprecedented engineering problems, they specified stainless steel castings for the wearing parts of these mechanisms.

A cast stainless conical plug, 99 inches in diameter at the large end, 6 feet long, and weighing 19,500 pounds, serves as the key part of each of the three valves. The bore of the waterway through the plug tapers from 64 inches at the inlet side to 60 inches at the outlet. In operation, these valves act much like stopcocks. For positioning, electric motors with gear reducers rotate the plugs and their positions are transmitted electrically to the control board where venturi meter indicators show the rate of flow through the valves.

The 85-mile Delaware Aqueduct tunnels deliver up to 800,000,000 gallons of water to New York City each day. Located at the intake of the tunnel leading from Kensico Reservoir to Hill View Reservoir just outside the northern limits of the city, the three valves, alone or in combination with roller sluice gates, control flow into the tunnel when the aerator is not in operation. Water passing through the valves has already dropped 50 feet and has another 400 feet to drop into the tunnel; the result is a maximum velocity of about 40 feet per second. Since dependable operation is paramount and the sheer scale of the equipment makes any maintenance a major operation, the plugs were cast of stainless alloy of the CF-20 type. Nominal composition of this alloy is 19% Cr, 9% Ni, and 0.20% max. C, but a maximum carbon content of 0.15% was specified for this application.

Dependable control of the huge quantities of water handled at Kenisco and other stations along the 85-mile tunnel from the Catskills required engineering techniques well in advance of the usual. In addition to the valves just described, Kensico's internal flow control system uses twenty-five power-driven sluice gates of various sizes. These direct the passage of water from the reservoir or reservoir bypass to the forebay, from the forebay to the tunnel or to the aerator, and from the aerator to the tunnel. Each of these gates is electrically operated and, like the valves, is as dependable as sound engineering can make it. The largest are 6 feet wide by 15 feet high and the smallest are 5 feet wide by 8 feet high. Above the gates and mounted on the main floor are the gate hoists,



Main features of the sluice-gate lift system, showing the important function performed by the cast stainless torque tube. Drawing of six-foot man (standing beside the gear motor) indicates the scale.

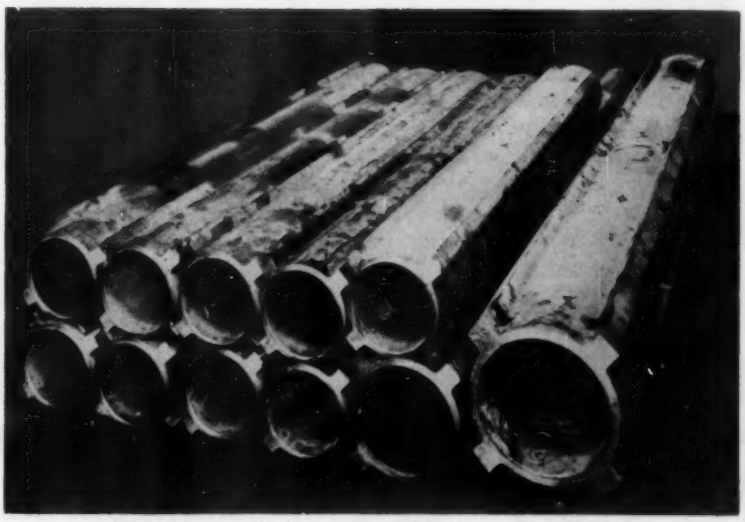
These gear motors drive sluice gates of various sizes to direct the passage of water.

the largest of which is nearly 24 feet high.

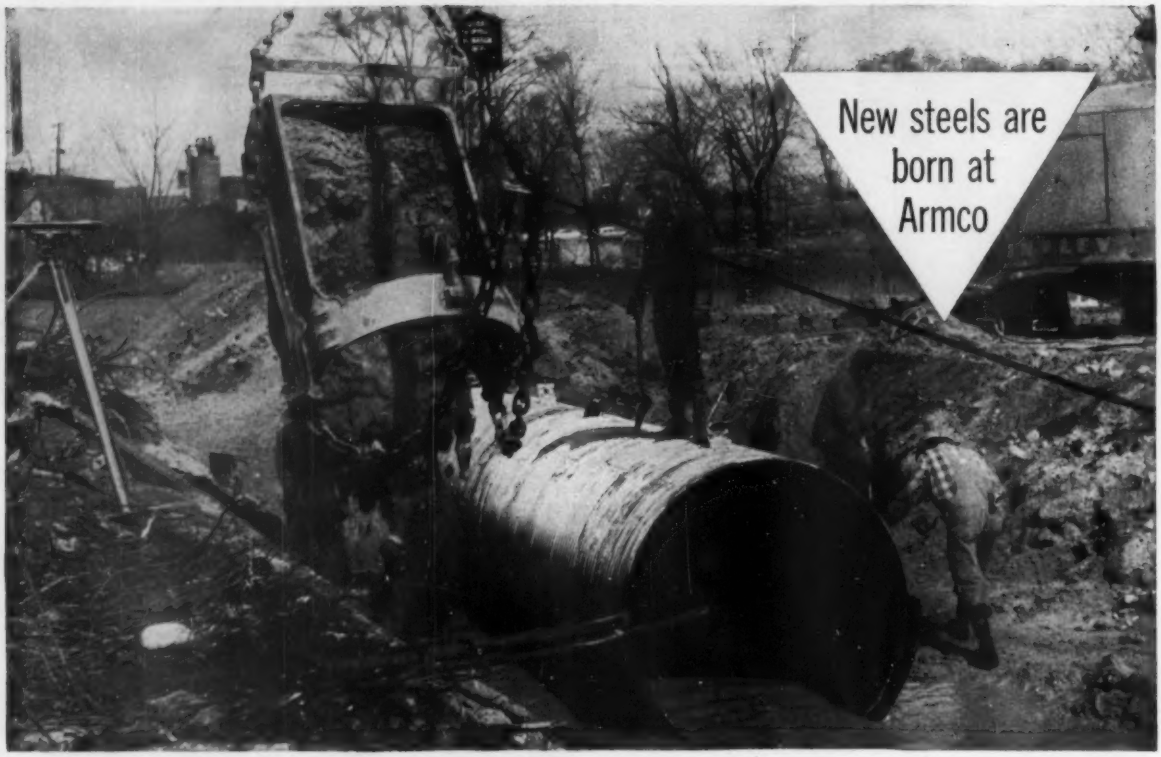
To operate the sluice gate, a gear motor slowly rotates the stainless steel drive screw which extends about 16 feet down into the control housing for the largest gates. Near the bottom, this screw (with the gate closed) is engaged by a bronze follower nut which, in turn, is fastened to the top section of a cast stainless "torque tube" filled with oil for lubrication. The rotating screw draws the follower nut upward and it in turn pulls the torque tube with it. Attached to the lower terminal section of the torque tube by means of a cast stainless steel nut, the stainless steel gate stem must also rise, lifting the sluice gate itself.

These motor-operated sluice gate hoists were designed by the Mechanical Division of the New York City Board of Water Supply and were fabricated by the McKiernan Terry Corporation, Harrison, N. J.

There are good reasons for this



Salient feature of the torque tubes is a set of four equidistant machined splines 1⅜" thick which project 1 5/16" from the tube and run the entire length except for the threaded section at the bottom.



Approximately a mile of Armco SMOOTH-FLO® Sewer Pipe was used on the South Westnedge Drain in Kalamazoo, Michigan. Construction continued even with water in the trench.

Street flooding stops when Kalamazoo installs Armco Corrugated Metal Pipe

Sections of Kalamazoo, Michigan's, South Westnedge Street (U.S. 131) used to flood after every heavy rain. Water backed up over the curbs onto adjacent residential and commercial property.

Recently, the Michigan Highway Department, Kalamazoo County, and the City of Kalamazoo, in a joint project, installed more than 5,000 feet of Armco Corrugated Metal Pipe for storm drains. The outfall passed through swampy lowlands where only corrugated metal pipe, in long, lightweight lengths with positive joints was suitable.

In spite of the difficult conditions, the job was completed quickly and successfully. There has been no flooding since, even during the heaviest rainfalls.

Armco Corrugated Metal Pipe can help solve *your* sanitary and storm sewer problems, too. There is a size and type to meet almost every sewer requirement.

For complete details, write for the catalog, "Armco Sewer Structures." Armco Drainage & Metal Products, Inc., 5469 Curtis Street, Middletown, Ohio. In Canada: Guelph, Ontario.

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construction. The problems of erecting any such gate mechanism in the first place are formidable and some features such as the coupling nut (a stainless casting of 735 pounds) are "conveniences" needed to make assembly of the mechanism possible at all. These nuts are cast of type CF-16F stainless alloy (19% Cr, 9% Ni, 0.16% max C, 0.20-0.35% Se), which has improved machinability.

The torque tube solves a different sort of problem. Because it has heavy splines running longitudinally, it can slide vertically in the guide grooves without permitting the friction between the follower nut and drive screw to force the whole assembly to turn with the screw.

Cast-Weld Construction

The designer of the mechanism specified stainless centrifugal castings for the torque tubes. Each tube is a three-part assembly consisting of a relatively long center section with short sections welded to both ends. For the largest gate, a tube 17 feet, 7 inches long was formed by welding a 37⅝-inch section to the top and a 30⅜-inch section to the bottom of the center portion; this tube is 13 inches in diameter and has a minimum wall thickness of 13/16 inch. Since heat treating of the welded assembly would not be feasible, alloy grade CF-8C (19% Cr, 9% Ni, 0.08% max C, 1.0% max Cb) was selected. The final "C" in the grade designation shows that the alloy contains the element columbium which permits welding of the castings without the need for subsequent heat treatment.

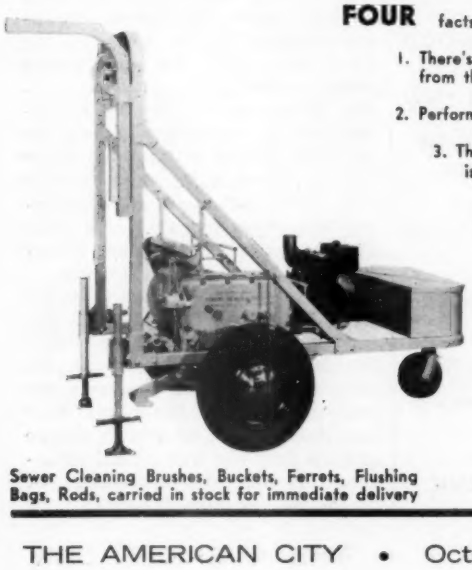
In austenitic alloys, welding may cause precipitation of chromium carbide along grain boundaries in the heat-affected zone, thereby reducing the corrosion resistance of the material in this area. Normally, this condition would be corrected by heat treating after welding. Where post-weld heat treating is not practical, the columbium-bearing alloy is used. Columbium carbides have a greater tendency to form under conditions of welding than chromium carbides; thus avoiding the formation of a chromium-depleted grain boundary network. As a result, the tubes show no weld-line corrosion.

It cannot yet be said that these stainless castings "have proved

TURCO

MAXI-POWER Sewer Cleaning Unit

Note the STIFF LEGS—quickly adjustable to compensate for uneven ground.



Sewer Cleaning Brushes, Buckets, Ferrets, Flushing Bags, Rods, carried in stock for immediate delivery

ONE unit consists of:

TWO machines, located at the ends of the sewer section to be cleaned.

TWO models (501 and 502) each with 3-speed transmission, enable you to get the exact power and line speed you need:

	1st gear	2d gear	3d gear
#501	11000 lbs.	9000 lbs.	7000 lbs.
#502	15000 lbs.	12000 lbs.	9000 lbs.

FOUR facts to consider:

1. There's a unit exactly right for any city, from the largest to the smallest.
2. Performance is easy, quick, thorough.
3. The original full flow of the sewer is restored.
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Turbine Sewer Machine Company

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(of traffic and crowded areas)
IN A *HURRY*

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- Compact, functional, highly portable.
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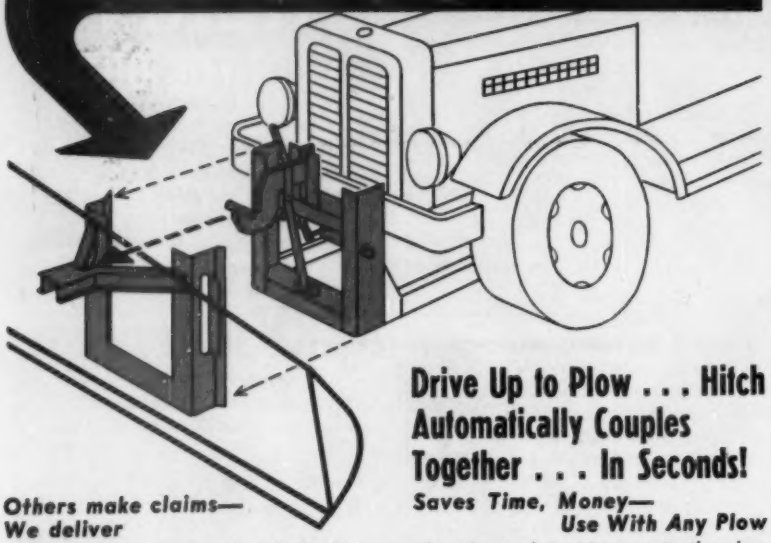

Drive Up to Plow . . . Hitch Automatically Couples Together . . . In Seconds!

Saves Time, Money—
Use With Any Plow

Others make claims—
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This revolutionary new patented Husting Hitch does what no other so-called snap coupling can do. This is truly a one man operation in three seconds without leaving the cab. The plow also may be disengaged in a matter of seconds.

The patented Spring Pin action does the trick. The spring loaded pins snap into slots. when the truck is driven up to the plow. **Any truck can be used with any plow.** The patented Husting Hitch can do a job for you. It is rugged, dependable and fool proof. Write for descriptive literature and learn about the really new development in snow plow couplings.

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PERMANENT CARRY CONTAINER FOR BACK DOOR REFUSE COLLECTION

Made of flexible plastic "TUFLITE"
- **Huge 52 gallon capacity**
- **Only 6 lbs. light. Waterproof**
- **Won't crack in cold**

Designed by a Municipal Sanitation Supervisor, the Back-Door-Box is now being used by over 100 refuse collection organizations. Has won acclaim of collectors and offers months and months of carefree use. $16.50 each; 6 or more, $13.50 each, FOB New York.

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themselves in service." All they have to do to "prove themselves" is to continue to operate properly for many years to come with little or no maintenance. The fact that they have stood up to nine years of service under the punishment of gargantuan flows and forces gives a good indication that they will live up to design expectations. Apparently, too, the designers of this system continue to be confident of the staying power of stainless steel castings for they have on their drawing boards today a cast stainless venturi section 12 feet in diameter, designed to operate without maintenance for decades.

Alaskan Mayor Defies State Ban

Mayor Ernest Williams of Kake, Alaska, a predominantly Indian fishing community, will be the voluntary defendant in the first court case that will test the validity of a new state law. The law bans the use of fish traps on all lands or waters over which the new state has jurisdiction. The great majority of Alaskans have been actively seeking this objective for the past 10 years. A federal decision of the Secretary of the Interior, under the temporary retention of federal control over commercial fisheries (as provided by the Statehood Act) banned the use of fish traps for the 1959 fishing season but made an exception for the native villages which operate them. At least three of the native communities whose entire economies depend on fishing and which claim they have insufficient equipment to replace the fish traps during the current season, have insisted on their rights to continued use of the fish traps in 1959 under the federal exception. Responsible for upholding the state law and the constitution which prohibits any discrimination, the governor of the state announced his decision to enforce the law with the use of the state's police powers. When it appeared that the only thing that might stop the inexorable enforcement of the state ban was a court decision, Mayor Williams stated his willingness to be the first man arrested in a test case. No sooner had the first fish trap of 1959 been put in place than the law enforcement arm of the state reached out to confiscate the trap and to arrest the mayor, who had insisted that he was in charge and the only one who should be arrested. A court decision was hoped for before the salmon run.

City Crews Get Public Praise

Letters are about the only way that a city government ever hears that they are pleasing their "customers," so an occasional overheard remark which is unsought and unexpected can bring real pleasure to officials. One such incident occurred not long ago in Austin, Texas.

One of Austin's popular shopping-center library stations located in one of the city's larger centers surrendered its quarters to business growth and was given a new and better location. City crews of several departments were involved in the move. Within 48 hours the new room was ready and the library attendants were checking out books.

Suddenly smoke was noticed and the fire department called. So still another city crew dashed over to take care of the fire while the moving and book checking continued briskly. One of the librarians was standing in an alcove watching the firemen disconnect the lights when she heard a group of men talking.

One said, "I didn't know the library had moved."

"Moved," said another, "you're never seen such teamwork in your life. The carpenters and painters and electricians only came here two days ago to get the place ready. They've done the impossible."

"Look at the library people working in the middle of all this upset," said the first man.

"It looks like it takes more than a move and a fire to put a crimp in *them*," said the second man as they moved away.

How Dakota Cities Eliminate Mosquitoes

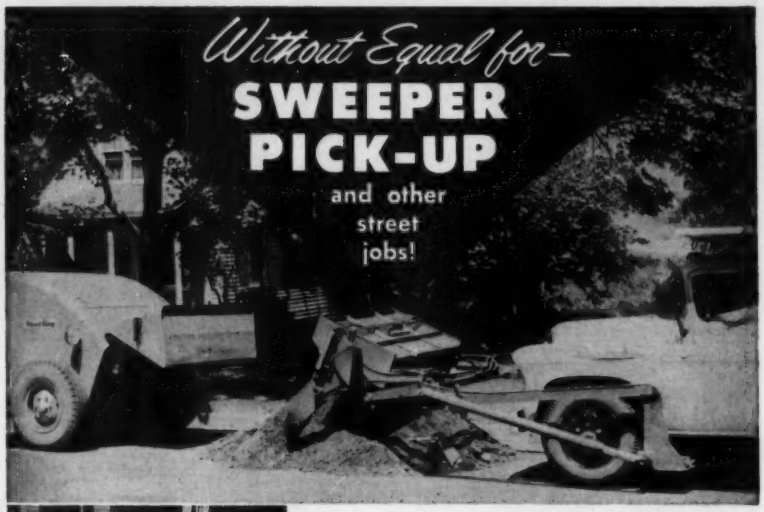
Wahpeton, N. D. hasn't been troubled by mosquitoes for over eight years. But before that, the pests were so bad that local citizens dug into their own pockets to make a private donation for a high-pressure sprayer on condition that the city would do the work.

Since that time, the city's street and park departments have been sharing in the spray duties. The street crews spray the alleys and residential streets; the park department sprays all parks, the golf course, ball diamonds and archery ranges. Spraying always starts at 5 p.m. when the cool of the evening will hold the insecticide close to the ground. The crews apply the insecticide once a week during the mosquito season.

Jamestown, in the same state, started its program in 1955. The city has an independent park board that agreed to purchase the sprayer. The park board does such spraying as the city requires; in return, the city stands ready to do the park board a favor when the park board needs one—a nice working arrangement. Crews apply the insecticide to the parks each Saturday afternoon, and as required in the residential areas. Applications always are made in the evening.

Nearby Huron, S. D. also started its program in 1955 in response to public demand. The city's one large mist sprayer provides protection to 55 miles of alleys, five parks and recreation areas, bathing beach, ball parks and livestock sales pavilions. In addition, the city sprays the South Dakota State Fair Grounds. Daily costs run about $125 on a long day's run. The insecticide used is malathion and 25% DDT. Tree spraying is directed by the Park Department. Insect control is under the Health Department.

All three cities use John Bean mist equipment.



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HYDRAULIC BUCKET

The LoDal Grapple Tilt Bucket is especially designed as the most effective machine made today for sweeper pick-up. The 42 inches of pavement drag gives completely clean pick-up with no need for manpower hand shoveling into the bucket. The hydraulic grapple (with balanced closing action) does all the work! Designed for a self loading truck to which it is mounted and for loading other units. Bucket capacities 3/4 and 1 cubic yards.

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Architect and Engineer: J. N. Pease & Company, Charlotte, N.C.

For permanence and beauty in its newest waterworks building...

Charlotte, N.C., chose panels of precast concrete

The Charlotte Water Department planned for the future of their rapidly growing community when they designed their new $4,000,000 Hoskins Filter Plant.

They wanted permanent architectural beauty along with practical economy. They got it by using decorative precast concrete panels attached directly to the building's concrete frame. The exposed aggregate of the panels gives a lively and pleasing combination of texture and color. In addition, the use of precast panels saved construction time. And the building will keep its fresh beauty for a lifetime.

Architects and engineers everywhere will tell you: Versatile concrete is the one building material that offers unlimited new design possibilities for structures of all kinds. Write for free literature on precast panels. (U.S. and Canada only.)

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Hannibal's marina is a big civic "plus" in pleasure and economic stimulus.

A Marina Is Good for a City

. . . because it stimulates business and adds to recreational attractions

By **W. EARL DAVIS**, President, Hannibal Small Boat Harbor Commission, Hannibal, Mo.

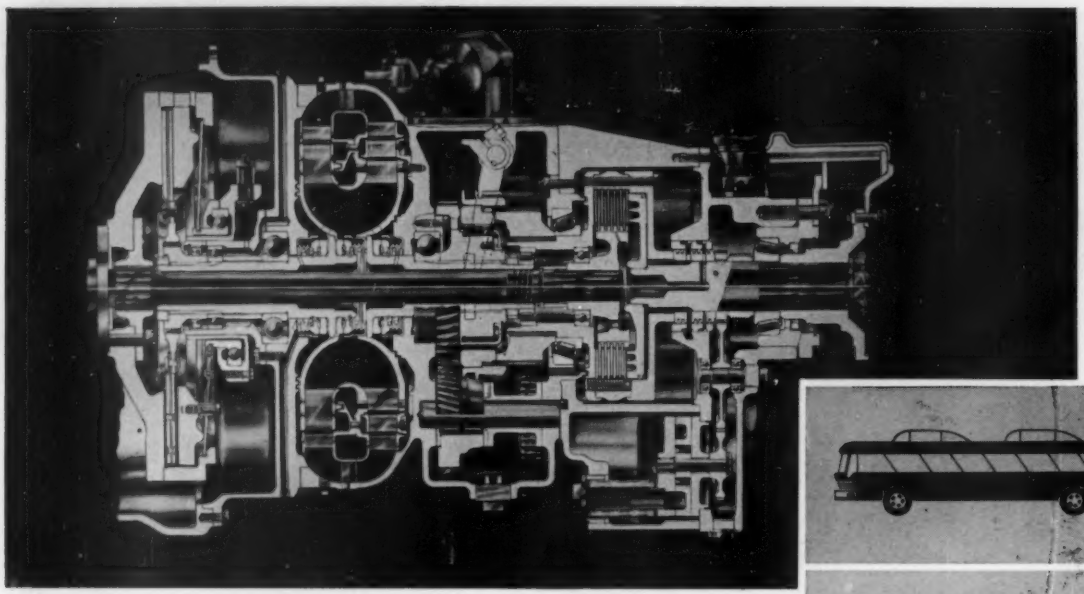
Hannibal, the Mississippi River town made famous by Mark Twain, Huckleberry Finn and Tom Sawyer, is celebrating a new achievement in pleasure and recreation—the opening of a modern boat marina. For Hannibal, it is the culmination of 13 years of community effort—first, in the building of a harbor, then in the design and installation of an all-steel marina that is one of the most modern on the Mississippi.

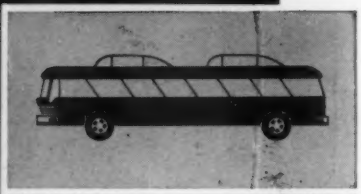
The development of our marina started in 1946. The United States Engineers carefully studied the location and type of harbor, presented and changed plans five different times, finally selected a location Then the real work of modernizing the harbor and bringing facilities up to the highest standards of safety and convenience began, aimed particularly at family and pleasure boating. In October 1958, Mayor Clyde Toalson, appointed a 7-man Hannibal Small Boat Harbor Commission. The members, all local men and all boating enthusiasts, include: Frank Glueck, George McMurphy, Jimmy Roland, Harry Misgrove, Jr., Montel Huggins, secretary-treasurer, Clarence Lampton, vice president, and the writer as president.

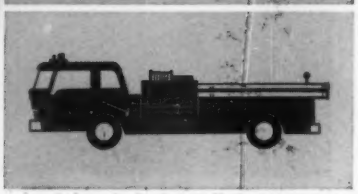
The main problem of location had already been solved, thanks to the United States Engineers. Fortunately, the land was owned by the city so there was no problem of land purchase, once the decision was made. The harbor was completed by the U. S. Government, which handled all expenses in planning and building the harbor—with the agreement that the city would put in slips, toilet facilities, telephone service, and provide all maintenance.

Then the Harbor Commission went to work. Individually and as a group, we travelled many miles, looking for ideas and the proper facilities to make the "dream harbor" a reality in every detail. At Rock Island, Ill. we found a modernization project that we thought was the very best for boat owners. This was an installation of all-steel docks floated on special steel pontoons, with floating marinas that could be adjusted to fit boats of varying sizes. It was designed and installed by Standard Steel Products Manufacturing Company of Milwaukee.

The Commission decided that we would have this type of facility. But raising the money to buy the







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equipment was not easy. Like most other cities, Hannibal does not have surplus money. But the city finally agreed to lend us $9,000 as a down payment for the boat slips, and Standard Steel Manufacturing Company made arrangements for the balance to be paid at $9,000 a year until the cost was covered. Now it is up to the Commission to make the marina self-supporting with boat slip rentals, and sales of gasoline, oil, and other concessions in order to take care of our yearly obligation.

As I mentioned before, the new marina is of the latest type of all-steel construction, with steel pontoon floats. It is far more attractive than wooden docks and has many other advantages. It can be installed, moved, changed, expanded in a fraction of the usual time. It can be securely anchored without excessive pile-driving expense. The new steel pontoons eliminate the old steel drums and their costly maintenance, repair and replacement. The deck surfaces, of heavy steel, are embossed and finished in a special abrasive paint for complete non-skid safety, even when wet. And with completely bolted design, the boat slips can be adjusted to fit varying widths and lengths of boats.

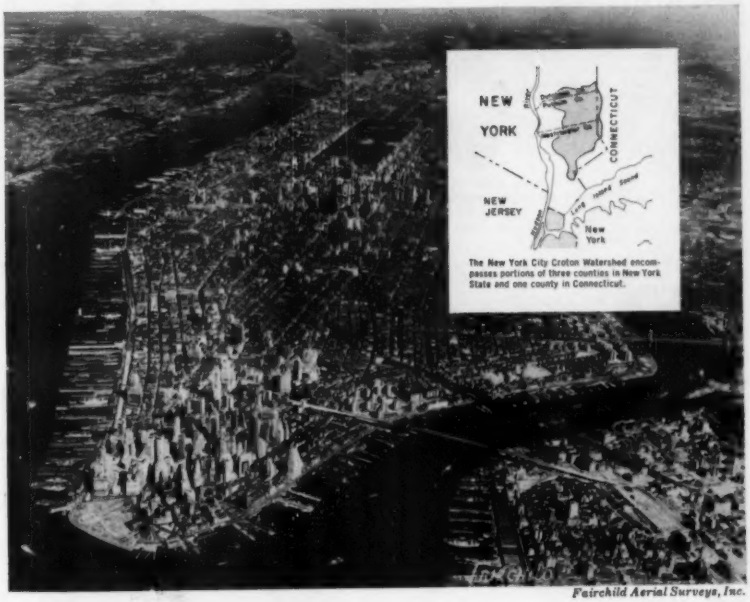
Accommodations

Our Hannibal boat harbor 1½ blocks at present, has accommodations for 112 boats inside of the slips, and we have some other space where boats can tie alongside of the boat slips and dock. We have about 800 feet of floating steel dock surface, six feet wide, to which the individual floating marinas or catwalks are secured. Our on-the-water service dock is 40 feet long with a 15-by-24 foot end platform, connected to the marina by 128 feet of steel dock. This floating service dock is used to dispense gasoline, oil, refreshments and other materials, both for slip owners and for daily river traffic, and is expected to be a prime source of income. Access to the dock and marina is provided by two special stairways, designed for this type of floating dock. Each is a new self-leveling type, hinged at the top, with pneumatic-tired wheels at the bottom. As the dock rises and falls with fluctuating water levels, the stairways move with it. The stair treads are pivoted so that they remain horizontal at all times regardless of stair position or angle, providing safe and comfortable footing. We have appointed an experienced harbor master to supervise the entire operation—service facilities, sale of gasoline, oil, all kinds of bait and fishing tackle, to promote speed boat rides and supervise concession stands where food and soft drinks are served.

Rates

In checking with other boating facilities, we found some variations in rates and after comparing and studying them in relation to Hannibal's facilities, arrived at what seems to be a satisfactory rental schedule for the individual boat slips.

We have installed two sizes of slips, in 16-foot and 24-foot lengths. We also have established two minimum rentals: $60 per year minimum for the 16-foot slips, and $100 a year for the 24-foot slips. Boats of 16-foot length or under, of course, take the minimum rate but beyond this length we have a rate based on the length of the individual boat. For boats from 16½ to 21½ feet, the rental schedule ranges from $77 to $96. Boats from 21½ to 26½ feet,



The New York City Croton Watershed encompasses portions of three counties in New York State and one county in Connecticut.

Fairchild Aerial Surveys, Inc.

How New York City is guarding its Croton Watershed against pollution

Migration to suburbia is creating a potential pollution problem of one of New York City's major watersheds. Here is what they are doing about it.

To meet the problem headon, the New York City Department of Water Supply, Gas and Electricity, under the direction of Commissioner Armand D'Angelo and Chief Engineer Edward J. Clark, has initiated a comprehensive sanitary survey. The New York City Croton and Kensico Watersheds cover a total of 400 square miles. A tremendous building boom in the watershed areas has brought with it a progressive and wide-spread problem of sewage and industrial wastes disposal. If the threat of pollution were ignored, New York City Engineers say that the usefulness of the watersheds would be seriously impaired.

Realizing that complete information on the watershed areas is needed before intelligent planning can be done, the Department's engineers working with representatives of Fairchild Aerial Surveys, Inc., prepared a program of aerial mapping of the complete area. Contact prints at a scale of 1" = 2000' and individual enlargements at a scale of 1" = 400' have already been delivered. Topographic maps, which include all cultural and physical features of the area, and soil analysis maps have been ordered and will soon be completed.

Once the Water Supply Engineers have the topographic and soils information, they will be able to plan and coordinate the construction of essential sanitary facilities in the watersheds. In addition, in areas of critical importance these maps will enable engineers to design sewerage systems for carrying the waste products off the watersheds.

Most cities today have planning problems. Fairchild aerial photomaps and topographic maps have proved to be valuable aids in making intelligent city planning decisions. Call your nearest Fairchild office and have the many Fairchild services explained to you.

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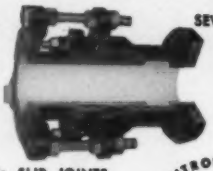

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using the 24-foot slips, are charged rates starting at $100 and going up to $119.

Hannibal is "on the map" in several ways now. We installed Phillips 66 gasoline at our floating service dock and the Phillips Company is putting our marina on its maps, designated as "Pier 66" Hannibal. These maps will be handed out at all pier 66 docks throughout the United States, as well as at boating dealers and other locations. And, because our price per gallon at the marina is the same price as in town, we expect to sell and are selling a substantial gallonage daily, especially during weekends.

River Tourists

We have had a large number of inquiries from individuals and families wanting to know about berthing facilities for a day or two stay in Hannibal. Hannibal has long been noted as the boyhood home of Mark Twain—Samuel Clemens—and we have his home and many relics of his boyhood days as a memorial and attraction for tourists, as well as the Cave and other landmarks mentioned in Mark Twain's books. So now we have the facilities to handle increasing numbers of river "tourists."

The new marina is not only a great boon to Hannibal boating enthusiasts, it is an impetus for business in general, and a booster for the town itself. Already in the relatively short time the Hannibal Marina has been in operation, local merchants have reported that it has had a noticeably stimulating effect on business this summer. It is a tribute to the farsightedness of Hannibal's Mayor Toalson, Administrative Assistant Roscoe Taylor and the entire City Council that our marina plans were so quickly brought to completion for the 1959 boating season. Facilities will be increased just as fast as demand—and finances—permit. Meanwhile, Hannibal has a highly practical kind of invitation for pleasure boaters—and extends a personal invitation to any city or town official or group interested in checking into new boating facilities.

Garbage Grinder Credit

Topeka, Kans. charges residents $1.35 per month for garbage and rubbish disposal. Residents owning a garbage disposer are allowed a credit of 60 cents per month.

Cincinnati Medics Define Unpolluted Air

A committee report to the Cincinnati Academy of Medicine sets standards for the levels of air pollution concentration that members feel will not endanger the public health. The standards, not yet acted upon by the Academy, run as follows:

Ozone or total oxidants	**0.1 ppm maximum 0.05 ppm daily avg.**
Sulphur dioxide	**0.2 ppm 8-hr. exposure limit**
Sulphuric acid mist (not a gas)	**0.15 ppm**

The committee urged endorsement and encouragement of the city's air pollution control work. It urges adoption of statewide laws expediting this control work. It urges industry to give greater attention to air pollution abatement and it warns that automobile exhaust gases offer a potential health hazard, and should be watched and studied closely.

Cities to Celebrate 14th United Nations Anniversary

On October 24th cities across the nation will join in observing the 14th anniversary of the founding of the United Nations. By official vote of the General Assembly of the United Nations and by proclamation of President Eisenhower, October 24th is "United Nations Day." The President calls "upon the officials of the federal and state governments and upon local officials to encourage citizen groups and agencies of the press, radio, television and motion pictures to engage in appropriate observance of United Nations Day throughout the land in cooperation with the United States Committee for the United Nations."

Last year nearly 2,000 towns and cities had official observances of UN Day, with more than 1800 mayors issuing UN Day Proclamations and appointing UN Day chairmen.

The United States Committee for the United Nations, whose chairman is appointed by the President of the United States, is officially charged with organizing the observance of UN day in this country. Mr. Charles F. Willis, Jr., Chairman of the U. S. Committee, wrote to mayors and city managers across the entire country in July requesting them to take similar action this year. Hundreds of communities have responded.

The United States Committee for the United Nations, a non-profit educational organization, distributes millions of pieces of literature annually about the UN and America's role in it. It will again conduct in October a nationwide radio and television campaign about the UN and it urges local citizens and officials to request their own radio and television outlets to use the material sent to them.

The U. S. Committee is calling attention to the following quotation from a letter to Congress from President Eisenhower, dated July 20, 1959: "The United Nations is—both for our country and for the community of nations—a proven asset of incalculable value. To remain so it requires, and must continue to receive, the faithful support of a strong United States."

Helpful literature and program guides for a UN observance day can be obtained from the U. S. Committee for the UN, 816 21st St., N. W., Washington 6, D. C.

ON THE SHORES OF MINNETONKA, the City of Wayzata, Minn. finds many uses for its new TENNANT "100" Vacuumized Sweeper. Unretouched inset photo (left) shows the dramatic difference between swept and unswept street.

How to sweep your city clean as a clear-water lake

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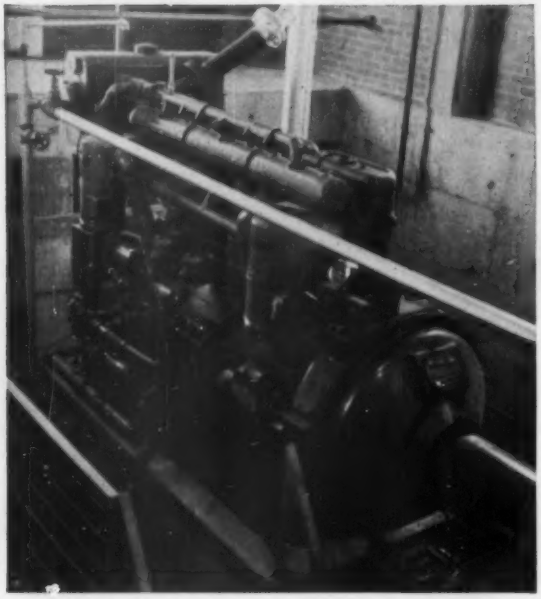
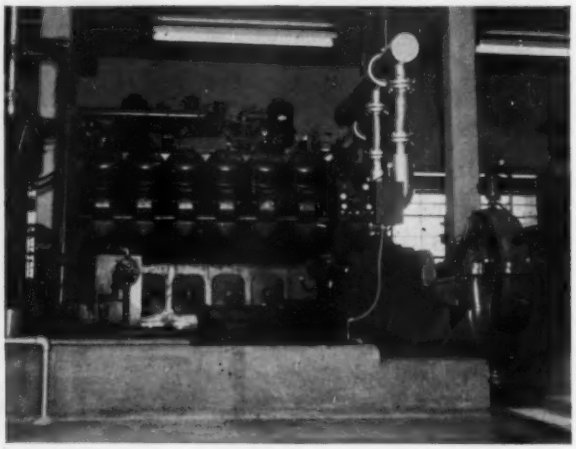


Model F-1500, maximum horsepower 215 at 1200 rpm on natural gas.

Model L-3460, maximum horsepower 595 at 1350 rpm on natural gas.



BASIC ENGINE CHARACTERISTICS*

GASOLINE OR NATURAL GAS					600	800	1000	1200	1400	1600	1800	2000	2200	2400
MODEL	Bore & S.	Cyls.	Displ.	Torque–rpm	BRAKE HORSEPOWER AT ENGINE SPEEDS INDICATED									
H540	4½ x 4¼	8	540	430- 900	...	64	82	99	115	130	143	155	164	170
H844	5¼ x 4⅞	8	844	637-1500	...	106	135	165	191	215	237	255	270	278
F1500	6¾ x 7	6	1503	1090- 650	125	165	200	215						
H2000	6¾ x 7	8	2004	1485- 650	170	225	270	290						
L3000	6¾ x 7	12	3006	2200- 650	250	335	405	435						
L3460	7¼ x 7	12	3468	2570- 900	285	391	492	568	595 @ 1350 RPM					
L4000	7.54 x 7.5	12	4000	2930- 900	325	446	560	645						

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Property Taxes in Phoenix Amount To 28.5% of Total Revenue

Property taxes produce only 28.5% of the total revenue needed by the government of Phoenix, Arizona. The trend has been steadily down from the 47.5% required 10 years ago. A breakdown of the sources of revenue for the 1949-50 and the 1959-60 fiscal years shows:

Non-Utility Revenue

	1949-50 Amount	1949-50 Percent of Total
Property Tax	$ 2,384,109	47.5
From Other Agencies	1,036,949	20.7
Other Local Taxes	967,712	19.3
Other Revenue	823,884	16.4
Adjusted Surplus (deficit)	(291,091)	(5.8)
Non-Revenue Receipts	94,296	1.9
Total	$ 5,015,859	100.0

	1959-60 Amount	1959-60 Percent of Total
Property Tax	$ 6,387,500	28.5
From Other Agencies	6,028,929	26.9
Other Local Taxes	3,939,810	17.6
Other Revenue	3,300,487	14.8
Adjusted Surplus	1,822,157	8.1
Non-Revenue Receipts	912,545	4.1
Total	$22,391,428	100.0

In addition, the city in 1959-60 will receive $8,697,851 in revenue from its water works and airport which it operates as utilities. Both operations are self-supporting.

Of these figures, the item, "Other Local Taxes" is tied directly to the level of economic activity and will fluctuate with economic trends. Thus, the stronger is Phoenix's economic base, the lower will be its property taxes.

In the 1959-60 revenue received, the $6,028,929 from "Other Agencies" includes:

State-shared auto tax	21%
" " gas "	14%
" " sales "	30%
" " financial tax	1%
Federal Urban Renewal	34%

The $3,939,810 from "Other Local Taxes" includes:

Light and Power Franchise	6%
Privilege License "sales" tax	93%
Housing Authority "in lieu"	1%

The $3,300,487 of "Other Revenue" includes:

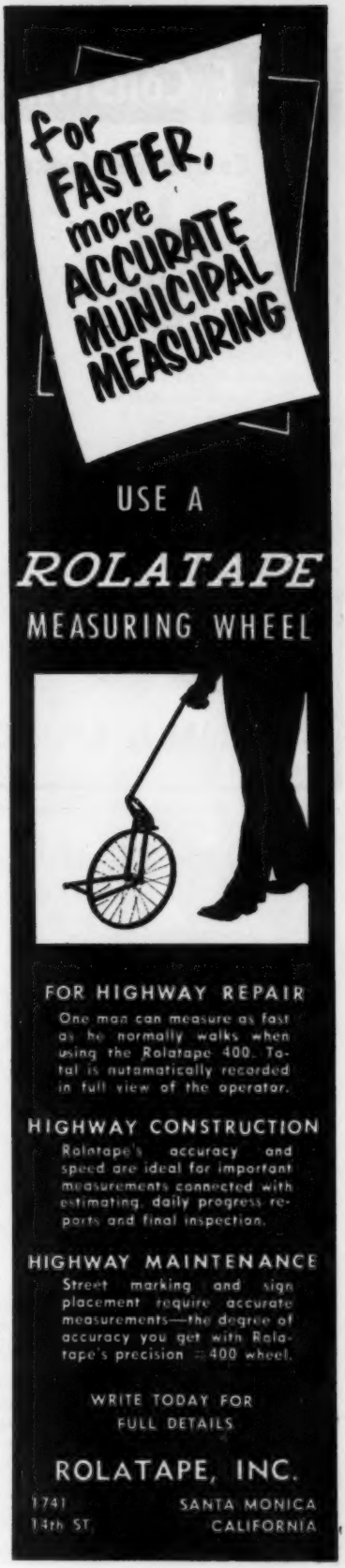
License and Permits	21%
Fines, Forfeitures	41%
Interest, Rents	3%
Service Charges	35%

Since 1950, Phoenix has increased in population by 247%. However, during that same period, the total revenues needed to operate the city have increased by only 218%. In this period the property tax rate has been reduced by 23%.

Competitive Bids Return to Austin, Tex.

Collusive bidding for public contracts has had a setback in Texas according to the League of Texas Municipalities, the NIGP Letter Service for May 22, 1959, reported. For the first time in years, according to statements of the City of Austin officials, competitive bids were received on lime the city purchases as a water softener. Bids from three companies ranged from $69,400 to $65,600 for 4,000 tons of lime, with the low bid amounting to a saving of $.50 a ton over last year's per-ton price of $16.90. City Purchasing Agent O. Grant Brush said lime bids for the last several years had been identical and had increased each year.

The Austin story was probably the first practical result of the State's legal campaign against identical bidding in city, county, and other governmental buying. Investigations begun last spring by Attorney General Will Wilson gained the early support of the Texas Municipal League. In a public statement released simultaneously with Mr. Wilson's, the League board urged him "to prosecute his investigation to the fullest extent possible and to take vigorous legal action whenever he finds justification." Following field examination aimed mainly at suppliers of chlorine, lime, electric transformers, and shell, the State filed the first of many lawsuits in September, 1958. In one case won in December defendant companies, suppliers of shell for Houston and Harris County construction jobs, paid a $120,000 fine.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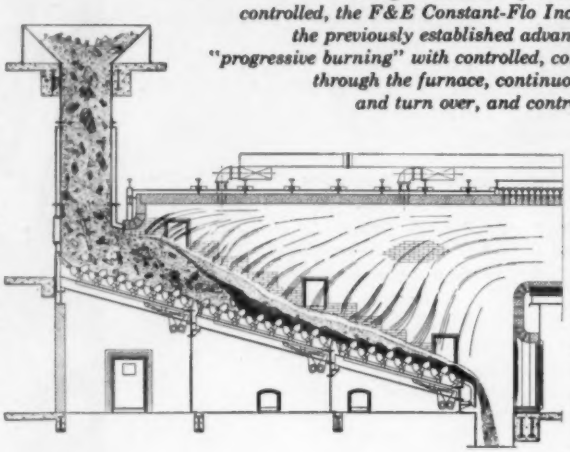

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BOX 636-J **DUNBAR, WEST VIRGINIA**

Cadillac, Mich. Tests New Water Source

Advantages of malodorous water may be strong enough to squelch efforts of city fathers to create a new supply

By JAMES R. BURCH
City Manager
Cadillac, Michigan

Cadillac's pump-house is on the shore of Lake Cadillac. It is subject to flooding, as this picture of high-water this spring shows. Lake water is screened and chlorinated only.

Hydrologist Lynn M. Miller checks drawdown on a Type F water level recorder manufactured by Leupold and Stevens Instruments, Inc. of Portland, Ore. at one of the test wells.

After putting up with an inadequate water supply for more than 40 years, Cadillac, Mich. soon may receive good water in sufficient quantities for the first time. But nobody knows for sure.

The city's water now comes from Lake Cadillac, a large, shallow lake that produces enormous algae growths during the summer months. The water intake is at the northeastern end of the lake, near the center of population. Algae are concentrated near the intake end every summer by prevailing southwesterly winds.

Water is screened as it enters the pump house and is chlorinated before distribution but it receives no other treatment.

The city purchased the system in 1946 from Consumers Power Co., a private utility, and began a gradual improvement program but a change in the source was not immediately considered.

Consensus of city officials and engineers was that, although the water is malodorous, has a high degree of turbidity and becomes quite warm by summer's end, its softness (85 ppm), low iron content and other advantages outweigh its objectionable features as far as residents are concerned.

Nevertheless, they have attempted improvements in the past—with indifferent results. Original plans proposed moving the intake to the southwestward, so that water could be sucked from a 25-foot depth, rather than from the 15-foot level.

Then, in 1955, an engineering firm recommended an over-all $2,000,000 improvement program. The proposed solution called for a million-dollar filtration plant, expenditure of $250,000 for a four-mile loop around Lake Cadillac, $125,000 for elevated storage in the hill section and the remainder for meters and improvements.

The proposal was defeated by the voters by a 3-1 margin in November of 1956, possibly because few Cadillacans drink water from the tap. Neighborhood hand pumps and a pressure well at City Hall provide drinking water.

With the Michigan State Health Department pressing for a solution, city commissioners appointed a citizens' study committee, which included a local geologist and a civil engineer.

They made an intensive study of all types of water systems and courses and in the summer of 1958 recommended feasibility studies for a well-water supply source.

The Toledo, Ohio firm of Jones, Henry and Williams was retained and that company's hydrologist, Lynn M. Miller, made preliminary surveys last fall, taking resistivity tests. They indicated the northwestern industrial plain as the best potential location for driven wells.

Contracts were let for test wells and in mid-May 1959 the first pumping tests were conducted at a 140-foot depth. These tests indicated that a city-owned 40-acre field could produce more than 10

million gallons a day, about twice the maximum daily use in Cadillac.

The only drawback was hardness, found to be 180 ppm. That's not excessive, but it rated much harder than Lake Cadillac's 85 ppm, to which city residents were accustomed.

Tries Again

Miller, still well within his budget, ordered one well deepened beyond a clay stratum which began at 175 feet. The well entered a new, better-looking water-bearing formation about 240 feet down. At 300 feet, he ordered new water samples.

They proved to be of even higher quality than those of the shallow formation, with only 107 ppm of hardness and much lower iron and chlorides content. The pH was neutral, as at 140 feet, and adding to natural advantages, the deep formation proved to be an artesian one. Water rose to within 30 feet of the surface, providing an unusual 270-foot advantage in pumping head.

After pumping tests showed, as Miller put it, "more water there than Cadillac can use for the rest of this century," he ordered the well deepened to 450 feet or until clay was hit, whichever of the two came first.

The well went to 450 feet with no sign that the formation was coming to an end.

Now, well-field plans and distribution-system drawings are being prepared. Miller proposes a two-level system with booster pumps to maintain hill pressures, and permitting lower pressures in the plains.

Preliminary cost estimates total $1,000,000 for development of the source and additions to the distribution system. The loop around the lake has been dropped from planning.

The chief stumbling block remaining is still the people, and there is a vote expected on a bond issue sometime in the late fall or mid-winter.

This time, city officials feel confident that the issue will carry the day.

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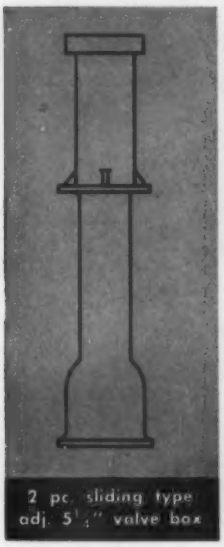

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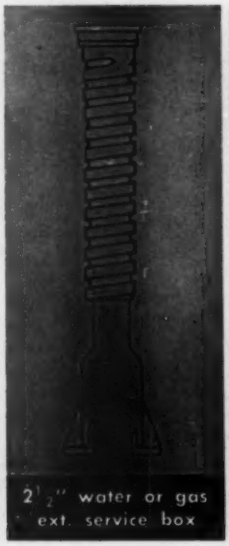

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BOX 55—STATION B DE 6764 BUFFALO 7, N. Y.

Chicago Transit Completes 10-Year Program

The Chicago Transit Authority has reported that in 1958 it completed its 10-year modernization program at a cost of $144,056,000. On December 31, 1958, CTA had completed 11 years and three months of transit operations.

The $144,056,000 includes $111,194,000 for new passenger equipment, and $32,862,000 for the construction of three operating garages, car house conversions and bus garage improvements, bus loops and terminals, rapid transit system signals, interlockers and automatic crossing gates, and modernization of central repair shops, shop tools and machinery, and various other facilities.

Two Changes

The year 1958 saw two notable changes in Chicago's mass transportation pattern. These were the conversion on June 20 of the city's last streetcar line and the opening on June 22 of the new West Side Subway in the median strip on the Congress Expressway. The latter is America's first rail rapid-transit facility designed and built as an integral part of a multi-lane automobile expressway.

Help for the fall round-up

You don't need a gang of men with brooms and shovels rounding up stray leaves and debris when a "PAYLOADER" with Drott 4-in-1 bucket is on the job, and you don't have to close a street to traffic for clean-up either. The "PAYLOADER" can work close and parallel to the curb, while its clam-action bucket picks up sweeper piles cleanly and dumps them over the truck's tail gate.

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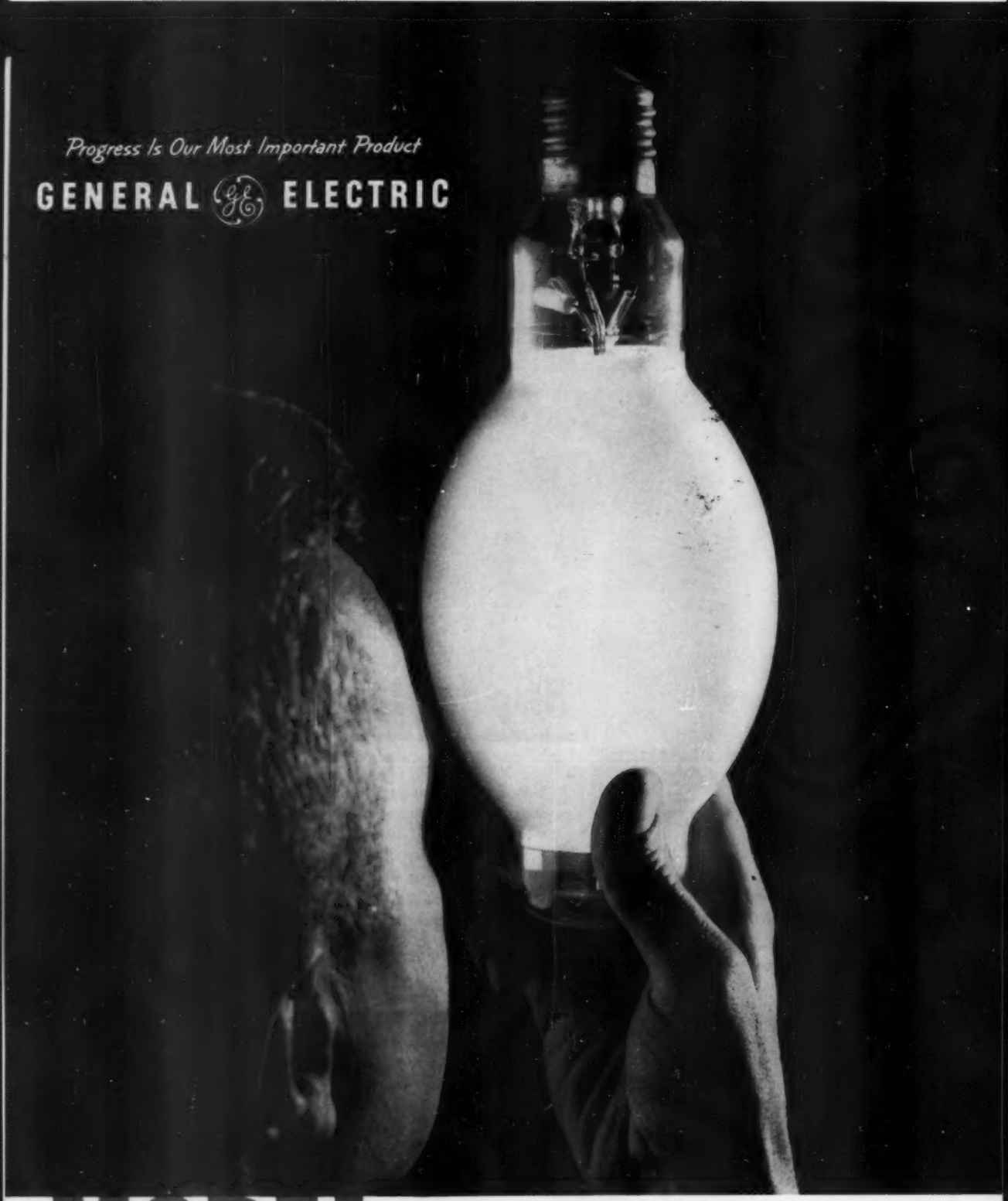

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"You see, General Electric Mercury Lamps, *at any given time in their life, will outperform other brands the same age.* What's more, they're built to last as long or longer than any other. It figures. After all, General Electric is first in mercury . . . just as they are first in fluorescent and filament lamps. So I'll just stick with the leader."

General Electric Co., Large Lamp Dept. C-936, Nela Park, Cleveland 12, Ohio

City participation stimulates . . .

Dayton's $13,000,000 Urban Renewal Program

City's 750-acre East Dayton Urban Renewal Project area is getting a new lease on life through resident-city government joint effort

By **ROBERT E. SKINNER,** Urban Renewal Development Supervisor, Dayton, Ohio

Neighbors pitch in, tearing down a dilapidated shed in drive toward better neighborhood appearance.

The East Dayton Urban Renewal Area Plan of Dayton, Ohio is a big undertaking—a $13,000,000 one—that is putting a new face on some 750 acres of land in which 27,000 persons (10% of the city's population) live. The area that will be rejuvenated represents almost 3% of the total land area of the city.

Some 67 acres are scheduled for total clearance and redevelopment and the remaining 683 acres, containing 4,400 structures, will be modernized and repaired. In the entire area, there are 8,500 dwelling units, 20 churches, five schools and a number of sound and marginal business and industrial establishments.

The most significant part of the plan is that much of the actual work in the uplifting operation will be done by the residents of the East Dayton area itself.

Citizen participation in city affairs on the neighborhood level is not something new to Dayton. As long as forty to fifty years ago, the ward system of politics provided means for this type of participation but the principal draw-back under the old system was lack of initiative and harmony in liaison between the city and the people.

Until recently, for example, few community improvements through citizen projects—with aid and serv-

Re-New—Re-Do rally is designed to stimulate and dramatize community-wide efforts in the Clean-up—Paint-up—Fix-up program.

Jaycees come visiting to demonstrate what community effort means. This house was a Junior Chamber of Commerce painting project for a needy homeowner.

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With 325 miles of northern Illinois roads to look after and a budget to watch, Field Superintendent H. B. Brown, of Winnebago County, makes sure the equipment he has is modern and efficient in every respect.

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OFF SEASON — During winter months, the TL-20 is a big help on snow removal and loading salt, cinders, crushed stone. In the spring, it digs out frost boils from the black top.

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ice by the city—were carried out. Today, something is being actively done to bring about an improved community.

The citizens of East Dayton now realize that urban renewal is not just a matter of organizing an administrative program for carrying out ideas and ways of spending federal and municipal money by following a detailed plan. Rather, they believe that urban renewal is the sum total of citizens' activities attempting to improve their community—thus the over-all attempt by the city as a whole to facilitate the improvements with correct and better service.

Objectives

Six objectives of citizen participation in East Dayton are:

1. to create a positive attitude among tenants, business interests and property owners toward the over-all urban renewal program,

2. to interpret the city's land-clearing action to the residents and act as liaison between the owners and the official agency carrying on clearance activities,

3. to promote owner-generated clean up, paint-up, and fix-up work in the rehabilitation areas,

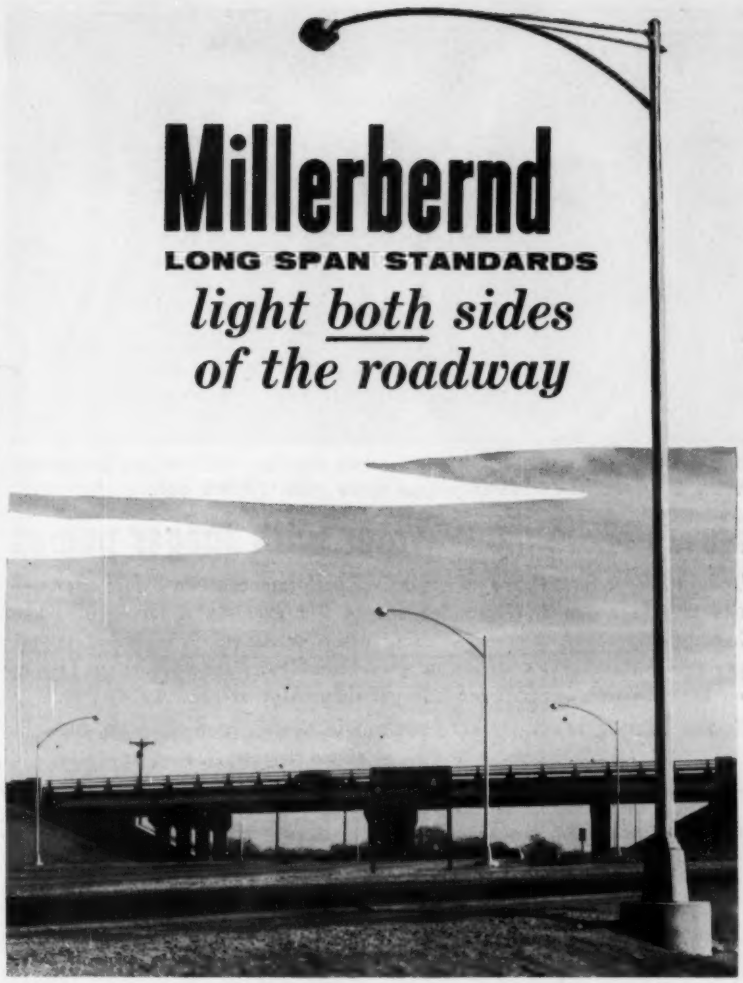
4. to sponsor beautification programs for neighborhood improvement,

5. to focus support and interest of various community action groups on other health and welfare programs, and

6. to enlist the support of public and semi-public agencies for other improvements and action where necessary.

With local citizen participation, the progressive urban renewal program is gathering steam in the East Dayton Renewal Area. The amicable and cooperative partnership between the city and the people of the renewal area has swung into high gear in a combined effort to create a better East Dayton. Ice cream socials, neighborhood improvement rallies, community council meetings, and other activities are establishing a liaison between the city and the people by the way of a recently-formed citizens' organization known as the East Dayton Community Council.

The Council was formally organized at a dinner meeting attended by over 200 community leaders residing in or near the renewal area in the spring of 1959. However, for more than two years the council had existed merely as the East



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Dayton Community Committee, a field unit of the Dayton Area Councils Service. Estimates indicate that during the next five years, nearly 1,200 families will be displaced within the major clearance areas and that spot clearance, added to public improvements, will require the relocation of approximately 775 families.

Coming Changes

The Urban Renewal Program will bring about the following changes:

1. the city will buy more than 900 properties, covering the 67 acres where total replacement has been proved necessary.

2. this land will be cleared so it can be used for new buildings and for new parks and playgrounds,

3. improvement and modernization of more than 4,000 houses and buildings by owners,

4. public improvements through the construction of an East Dayton storm relief sewer; modification for street and alley improvements; improved traffic control and new small play areas.

It is anticipated that, with the use of sound and practical urban renewal planning, the character of the entire area will be raised instead of being allowed to slip downhill as has been indicated in the past years. Realizing that the goal of urban renewal is not just simple housing or slum clearance but rather a form of community development, citizen participation in East Dayton may also come to serve as a permanent form of schooling in public affairs.

Auto Exhaust, Cancer to Be Studied

A grant of $50,000 to the Sloan-Kettering Institute, New York, to determine whether automotive exhaust gases are related in any way to cancer in humans has been announced by General Motors.

The Institute will perform chemical analyses on samples of tars collected from automotive exhaust gases under a variety of operating conditions. Tar samples extracted from representative city atmospheres also will be studied in an effort to identify the effect of automotive exhaust gases in relation to other sources of air pollution.

Sloan-Kettering Institute will have a free hand in conducting all phases of the study during the next two years.

Some Rules of New York City's Waterways

Police Commissioner Stephen P. Kennedy has announced that the provisions of the State Navigation Law applicable to motor boat operation, both inboard and outboard, have been extended to the waterways under the jurisdiction of the City of New York and that from now on summonses will be issued to persons violating these provisions. The enforcement program is aimed at protecting the lives of persons using the waters and to prevent accidents and deaths by "hot-rodders" and irresponsible pilots of motor-driven craft.

Commissioner Kennedy warned that the laws provide that any person throwing any garbage "or other putrid or offensive matter" into the waters of the state is guilty of a misdemeanor punishable by a fine not to exceed $100, or by imprisonment for not more than one year or both; that the exhausts "shall be effectively muffled;" that no person shall operate a pleasure vessel towing a person on water skis or on surfboard or similar device unless there is another person beside the operator in a position to observe the progress of the person being towed.

Small-Fry Discourager

Colfax County, Nebr. has developed this simple homemade sheet-metal box that slips over starting and ignition controls of an International TD-9 crawler tractor. Its purpose is to discourage the inquisitive fingers of youngsters and other unauthorized persons from attempting to start and operate the tractor when left overnight and week-ends on the job.

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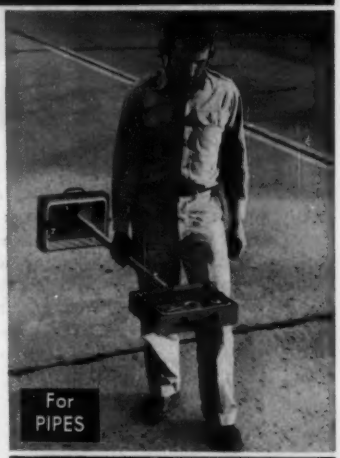

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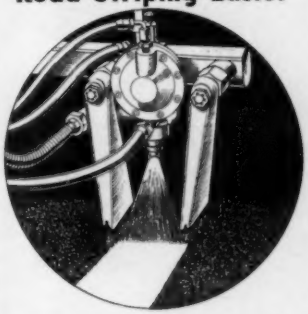

Kelly-Creswell Company, Xenia, Ohio, has a new automatic striping gun for use on highway and industrial road marking equipment. Gun is patented.
The gun is diaphragm-operated, which eliminates the air cylinder and upper packing gland found in most spray guns. This eliminates the greatest cause of air loss in automatic spray guns. The new gun requires about 25% less air to operate at peak efficiency.
The gun is being installed on all the various types of striping equipment made by Kelly-Creswell. Also available as a replacement part.
Kelly-Creswell is a pioneer manufacturer of a complete line of road-marking equipment—truck-mounted, power driven and hand operated.

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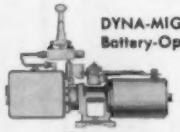

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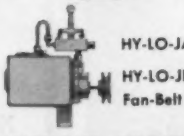

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ZONING AND PLANNING NOTES

Edited by NORMAN WILLIAMS, Jr.

Exclusion of Residences From Industrial District

ILLINOIS. *People ex rel. Skokie Town House Builders* v. *Village of Morton Grove*, 157 North Eastern (2d) 33 (Supreme (highest) Court, March 20, 1959).

In this case a developer purchased a group of lots in a commercial district and planned to build a group of row houses on the tract. However, after he had made some progress with his plans the local zoning ordinance was amended to forbid new residential construction both in manufacturing and in commercial districts. The application of the new restriction was challenged in this case both on a theory of vested rights and on the ground that the exclusion of "higher" residential development in less restrictive districts was void per se.

In the opinion, while uttering a word of caution, the Court explicitly upheld the exclusion of residences from both manufacturing and commercial districts, and the general principle of non-cumulative zoning restrictions with "higher" uses excluded from later districts.

> "Most of the earlier zoning ordinances were based upon this principle (that zoning is intended to preserve rather than to restrict dwellings) and, generally, the districts of less restricted uses admitted the uses of the more restricted districts. Recently, however, many municipalities have adopted non-cumulative type zoning ordinances which exclude most, if not all, future residences from commercial and industrial districts. This is the first case presented to us which involves such an ordinance. The primary question is whether such a limitation upon the scope of municipal powers is embodied as a limitation in law under the constitution and the zoning statutes."

> "There are many arguments in favor of this type of ordinance, although such an ordinance is a radical departure from our thinking and opinions in the past. We note a few. The dangers of heavy traffic are greater in mixed residential-industrial or residential-commercial districts than in districts devoted to just one purpose. Industrial and commercial districts are not good places to bring up families from a health standpoint; and the presence of children in and about industrial and commercial districts leads to a demand for school, park and playground facilities in an area where there is either no land available or the land available is ill-suited to such uses. In short, whether industry and commerce are excluded from the residential areas, or residences from industrial and commercial areas, it is not unreasonable for a legislative body to assume that separation of the areas would tend in the long run to insure a better and more economical use of municipal services, such as schools, providing police protection, preventing and fighting fires, and better use of street facilities. The general welfare of the public may be enhanced if industry and commerce are provided with a favorable climate. The sale of a few lots at important points in a district may make industrial or commercial expansion impossible or prohibitively expensive. To protect the residents in the district, traffic may be slowed down unduly and thus detract from the efficiency of production and trade. In final analysis, it seems clear that industry and commerce are also necessary and desirable and that a proper environment for them will promote the general welfare of the public. We are of the opinion that the exclusion of residences from a commercial or industrial district is within the police power of the state."

The Court also held that power to exclude residences from non-residential areas was found in the enabling act. However, in this case the Court held that the developer had obtained a vested right to go ahead.

The importance of this decision can hardly be over-emphasized. Most large cites, and many smaller ones, now exclude new residences from manufacturing districts. However, the legal validity of these restrictions has not yet been established, and this is the clearest decision to date on the point. Moreover, it goes even further, and upholds the exclusion of residences in commercial districts.

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Digging laterals for 250 houses in the rocky terrain of Berkeley Heights Township, N.J., proved the tremendous power of the Oliver Model 80 Hydro-Trencher. Replacing two other backhoes, the 80-HT actually increased production 30%, ending the double expense of operating two rigs.

Says contractor Peter Aponti, "What I looked for was a machine that would dig and dig—giving me more production. This is what the Oliver 80-HT does for me! It's a strong machine, the easiest backhoe I've ever operated. And boy! I am well satisfied!"

Municipalities, utilities and contractors know that the Oliver 80-HT is tops for digging in hard soils (even frozen ground), ripping out pavements, and other difficult jobs. It's big; it's powerful! The ½-yd. bucket digs and loads to 12 feet; boom swings 180°. Dual-circuit hydraulics permit raising or lowering bucket while swinging. Results: faster work cycle, more production.

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Industrial Division, 19300 Euclid Ave., Cleveland 17, Ohio

a complete line of industrial wheel and crawler tractors and matched allied equipment

LEGAL NOTES AND DECISIONS

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS, Charles S. Rhyne, General Counsel

Automobiles—

City License Tax Invalid

Where ordinance required registration of private automobiles which use city streets and fixed fee at $5, held ordinance invalid as adding additional registration fee to that required by state. *Phoenix City* v. *Putnam*, 109 S.2d 836 (Ala., March 12, 1959)

City Employees—

Residence Requirements Valid

In action to invalidate ordinance imposing residence requirements on city officers and employees, held that ordinance valid and not inconsistent with state law or policy. *Kennedy* v. *City of Newark*, 148 A.2d 473 (N. J., Feb. 16, 1959)

City Property—

Private Sale Not Invalid

In action to set aside private sale of municipal realty, held statute authorizing such sale with finance commission's approval was applicable and sale not invalid. *Schierstead* v. *Brigantine*, 148 A.2d 591 (N. J., Feb. 16, 1959)

City Property—

Lease Upheld

Where municipalities have under their charter full power to exercise local self-government, held they may lease or convey property without resort to competitive bidding. *State* v. *Redick*, 157 N.E.2d 106 (Ohio, March 4, 1959)

Comic Books—

Ordinance Invalid

Where ordinance prohibited any person from selling, exhibiting, giving away, or furnishing any comic book, magazine or other publication "which, read as a whole, is of an obscene nature," held ordinance void for uncertainty. *State* v. *Nelson*, 95 N.W.2d 673 (Neb., April 10, 1959)

Fire Prevention—

City Liable for Demolition

In action against city for damages for destruction of building as fire hazard where evidence was conflicting as to state of disrepair and whether hazard could have been removed by some other means, held city liable for such destruction. *Albert* v. *City of Mountain Home*, 337 P.2d 377 (Idaho, March 26, 1959)

Fireworks—Prohibition Upheld

In action by manufacturer and retailer of sparklers against city for temporary injunction against ordinance prohibiting sale or possession of sparklers, held ordinance reasonable exercise of police power. *Acme Specialties Corp.* v. *City of Miami*, 110 So.2d 18 (Fla. App., March 26, 1959)

Hospitals—

City Cannot Recover for Indigent's Bill

In action by city against township to recover for hospital services to indigent person, held where person resident of city and township recovery denied. *City of Champaign* v. *City of Champaign Township*, 156 N.E.2d 3 (Ill., Jan. 23, 1959)

Housing Authority

Rent Increase Upheld

In proceeding to set aside across-the-board rent increase of $6 per apartment by City Housing Authority, held increase valid. *Barnes* v. *New York City Housing Authority*, 184 N.Y.S.2d 314 (N. Y. Sup. Ct., New York Cty., March 18, 1959)

Intoxicating Liquor—

City in Dry County May Legalize Sale

Where statute intended that counties and cities be on equal footing and that either might hold election to prohibit or legalize sale of liquor, held city in dry county may vote to legalize sale. *Myers* v. *Martinez*, 320 S.W.2d 862 (Tex. Civ. App., Jan. 28, 1959)

Notice of Claim—

Invalid If Not "Verified"

Where claim contained no affidavit and notary public's jurat did not contain statement that matters stated in claim were true, held claim was not "verified claim" required by statute. *Hoffman* v. *City of Palm Springs*, 337 P.2d 521 (Cal. App., April 15, 1959)

Sewer System—Extension Ordered

Where statute prohibiting expenditure from sewer fund for expansion of systems to unsewered areas was in conflict with constitutional provision regarding general municipal utility construction, held that village may expand sewer. *Shoemaker* v. *Village of Granville*, 156 N.E.2d 757 (Ohio C.P., Licking Cty., Dec. 2, 1958)

Streets—

Automobile Accident—City Not Liable

In action by passenger against city for personal injuries sustained when automobile went out of control and turned over, held street not in such dangerous condition to make city liable. *Kling* v. *City and County of Denver*, 335 P.2d 876 (Colo., Feb. 24, 1959)

Streets—

Injury On State Highway—City Liable

In action for injuries due to failure of city to maintain proper barricades to warn drivers of hole in state highway which city was repairing, held by divided court that city was liable. *Jourdin* v. *City of Flint*, 94 N.W.2d 900 (Mich., Feb. 20, 1959)

Taxation of

Racetrack Admissions Valid

Held, that statute has not preempted the field of admissions taxes and ordinance taxing admissions to horse racing meetings is valid. *Bedford Sportspark, Inc.* v. *Leslie*, 155 N.E.2d 730 (Ohio C.P., Summit Cty., Feb. 3, 1959)

Urban Renewal Bonds Approved

In action to determine validity of voter approved urban renewal bond ordinance, held ordinance had sufficient standards respecting urban renewal programs to preclude improper delegation of legislative power. *Miller* v. *City of Louisville*, 321 S.W.2d 237 (Ky., Feb. 20, 1959)

Water Rents—City's Lien Upheld

Where city could shut off water or file lien against property benefited when user failed to pay water and sewer rents, held failure to shut off water did not estop city from asserting lien. *City of Philadelphia* v. *Northwood Textile Mills*, 149 A.2d 60 (Pa., March 16, 1959)

Water System—Water District

Cannot Enjoin City's Operation

In suit to enjoin city from buying water system, by water district, held district had power to buy another system but could not coerce owner of system to sell to it. *Hamrick* v. *City of Ashland*, 321 S.W.2d 401 (Ky., Feb. 27, 1959)

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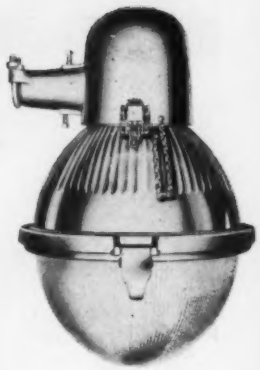

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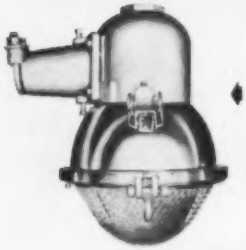
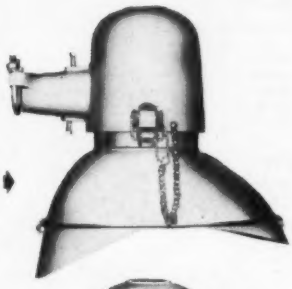
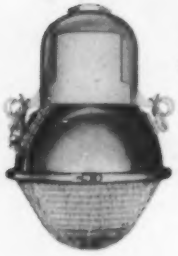


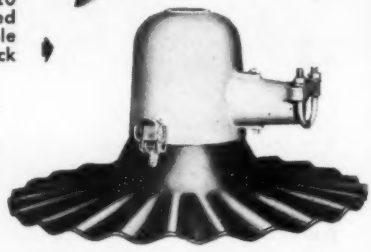
PEMCO Style 51 Junior Enclosed Luminaire — 1¼" or 2" slip fitter—All IES types—For 1000 to 2500 lumen lamps—Automatic latching or wedge band.



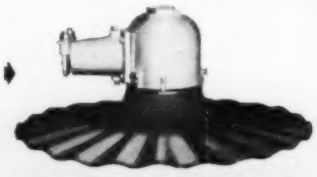
PEMCO Style 80 Standard Open Reflector Luminaires—1¼" or 2" slip fitter—For 1000 to 2500 lumen lamps. Available with wet process porcelain bushings for external wiring—Also manufactured with Style 20 Top Entrance Head tapped 1¼". Adapters available for use with screw neck reflectors.



PEMCO Style 50 Junior Enclosed Luminaire — top entrance tapped ¾", 1" or 1¼" — All IES types—For 1000 to 2500 lumen lamps — Automatic latching or wedge band.



PEMCO Style 58 Junior Open Reflector Luminaire—1¼" or 2" slip fitter—For 1000 to 2500 lumen lamps. Also available with Style 57 top entrance junior head tapped ¾", 1" or 1¼". Can be supplied with bail latch reflectors.



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RECENT CITY MANAGER APPOINTMENTS

J. J. Salovaara
Anne Arundel Cty., Md.

Cole Hendrix
Marceline, Mo.

LeRoy A. Starkey
Montclair, Calif.

A. J. O'Rourke
Neosho, Mo.

Chester Williams
Centralia, Ill.

Herbert Tucker
Harper Woods, Mich.

B. D. BANKS, manager at Rosebud, Tex. for the past year, is the new manager of Silsbee, Tex., succeeding William Pennington.

JOHN BEEHLER III, salesman for a private concern in Fort Worth, Tex., was recently appointed manager of Truth or Consequences, N. M., succeeding Hal L. Everett, now manager of Aztec, N. M.

GEORGE A. BISSON, insurance commissioner of the State of Rhode Island, has been appointed manager of Newport, R. I., succeeding Irving H. Beck, who resigned to accept an executive position with the Girl Scouts.

VICTOR BORTNICK, manager at Moundsville, W. Va., for the past two years, has been appointed the first manager of Flat River, Mo. Mr. Bertnick served as assistant manager of Parsippany-Troy Hills, N. J.

ROBERT L. BROUCEK, assistant manager at Brookfield, Ill., for the past two years, was recently appointed as manager of Two Rivers, Wis., succeeding John E. Dever, the new manager of Decatur, Ill.

JACK C. COSS, assistant manager at Raleigh, N. C., was recently appointed manager of Louisburg, N. C., succeeding E. T. Jones.

CHARLES W. DOUD, personnel director, Salinas, Calif., has been appointed the first city administrative officer of St. Helena, Calif. Mr. Doud was formerly senior staff member for L. J. Kroeger & Associates and organization and methods officer for Los Angeles Municipal Housing Authority.

FRANK FORCE, associate editor of *Public Works Magazine*, has been appointed as the first manager of Hellertown, Pa.

JAMES W. HARRISON, administrative assistant at Borger, Tex., has been appointed as the first manager of Littlefield, Tex. Mr. Harrison formerly served as finance and personnel director of Borger.

LEONARD HENDRICKS, city engineer of Clawson, Mich. for the past four years, was recently appointed manager of that city, succeeding Robert O. Wright, now manager of Aurora, Colo.

COLE HENDRIX, administrative assistant of San Angelo, Tex., is the new manager at Marceline, Mo., succeeding Lawrence Gish, now manager at Arkansas City, Kan. Mr. Hendrix has served as research assistant for the Bureau of Government Research, University of Kansas.

CECIL O. LANCASTER, manager of Mansfield, Mass., was recently appointed town manager of Wilmington, Mass., succeeding Alfred Calabrese. Mr. Lancaster was previously manager of Hartland and Wells, Maine.

RALPH LEHMAN, a recent graduate of the University of Maine, has been appointed as manager of Hartford, Vt., succeeding Roland F. Burke, who has resigned.

BENJAMIN S. MILLER, manager at Ardsley, N. Y., was recently appointed manager of Lake Success, N. Y.

A. J. O'Rourke, formerly manager at De Soto, Mo. for eight years, is the new manager of Neosho, Mo., succeeding Homer B. Ball, now manager at Brookfield, Ill.

ROY G. A. PETTERSON was recently appointed as the manager of Claremont, N. H., succeeding Thomas E. Duff, who is the new manager at Andover, Mass. Mr. Petterson has served as manager of Dormont Borough, Pa., and Ardsley, N. Y.

BRENT REMSBURG, manager of Vienna, Va., was recently appointed manager of Herndon, Va.

J. J. SALOVAARA, manager at Newark, Del., was named the new manager of Anne Arundel County, Md., succeeding Edward R. Lonergan. Mr. Salovaara has also served as manager at Albany, Ore., and Xenia, Ohio.

THOMAS E. SELMAN, director of public works and engineer, Indio, Calif., has been appointed manager, succeeding James O. Tennant, now manager at Barstow, Calif.

ROBERT W. SMALLEY, acting manager, Riverview, Mich., has been appointed the first manager of that city. He had been an administrative employee in Riverview for three years.

LEROY A. STARKEY, administrative assistant and director of finance for the City of Downey, Calif., has been appointed manager of Montclair, Calif., succeeding Lawrence W. O'Rourke. Mr. Starkey has served as assistant city manager of Hawthorne, Calif., and administrative assistant at Santa Ana, Calif.

PETE STYNER, formerly city engineer, has been appointed manager of Cleburne, Tex., succeeding Floyd J. Carroll, now manager of Kilgore, Tex.

GEORGE M. TOMSHO, administrative analyst of Alameda County, Calif., has been appointed the first county administrator of Lake County, Calif. Mr. Tomsho has served as assistant city manager of Modesto, Calif., and for more than five years was a field staff member with Public Administraton Service, Chicago.

HERBERT TUCKER, city engineer of Harper Woods, Mich., was recently appointed as manager of that city, succeeding Robert J. McNutt, who is now manager of Southfield, Mich.

GLENN E. VARENHORST, administrative assistant to the mayor of St. Cloud, Minn. for nearly three years, has been appointed the first manager of Salem, Ill. Mr. Varenhorst was formerly manager of Hays, Kan., and Sapulpa, Okla.

J. BEN WHITE, formerly an engineer with the White Construction Co. of York, S. C., was recently appointed manager of Winnsboro, S. C., succeeding Hugh N. Thompson, who now is the manager of Cayce, S. C.

CHESTER F. WILLIAMS, manager at Mascoutah, Ill. for the past four years, was recently appointed as the first manager of Centralia, Ill. Mr. Williams had previously served as manager of Sallisaw, Okla.

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Executive Director
International City Managers' Association

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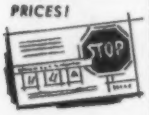

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CONVENTIONS — WHEN AND WHERE

Conventions listed this month for the first time are indicated by an asterisk (*)

***Oct. 8-10—Asheville, N. C.**
AMERICAN INSTITUTE OF PLANNERS—Southeast Chapter. Annual Conference (Battery Park Hotel). Pres., Irving Hand, 305 City Office Bldg., Nashville, Tenn.

Oct. 11-13—Dickinson, N. D.
LEAGUE OF NORTH DAKOTA MUNICIPALITIES. Annual Meeting (Ray Hotel). Exec. Sec., Mrs. H. C. McCreery, 408½ Main Avenue, Bismarck, N. D.

Oct. 11-14—Cleveland, Ohio
NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING. Annual Conference and Products Exhibit (Hotel Cleveland-Sheraton). Gen. Chairman, Leo Weil, Commissioner of Purchases and Supplies, Cleveland, Ohio.

Oct. 11-14—Philadelphia, Pa.
NATIONAL ASSOCIATION OF ASSESSMENT OFFICERS. Annual Convention (Sheraton Hotel). Exec. Sec., Albert W. Noonan, 1313 E. 60th St., Chicago 37, N. Y.

Oct. 11-14—Pittsburgh, Pa.
NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS. Annual Convention (Penn Sheraton Hotel). General Counsel, Charles S. Rhyne, 839 17th St., Washington 6, D. C.

Oct. 11-15—Boston, Mass.
AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS. Annual Convention (Statler Hotel). Exec. Sec., A. E. Johnson, 917 National Press Bldg., Washington 4, D. C.

Oct. 11-15—Dallas, Texas
FEDERATION OF SEWAGE AND INDUSTRIAL WASTES ASSOCIATIONS. Annual Convention (Memorial Auditorium). Exec. Sec., Ralph E. Fuhrman, 4435 Wisconsin Ave. N. W., Washington 16, D. C.

Oct. 13-16—Houston, Texas
UNITED STATES CIVIL DEFENSE COUNCIL. Annual Meeting (Shamrock Hotel). Sec., Elliott R. Jackson, Municipal Auditorium, Atlanta, Ga.

Oct. 14-16—Des Moines, Iowa
AMERICAN WATER WORKS ASSOCIATION—Iowa Section. Annual Meeting (Hotel Fort Des Moines). Sec.-Treas., J. J. Hail, Dubuque, Iowa.

Oct. 14-16—Green Bay, Wis.
LEAGUE OF WISCONSIN MUNICIPALITIES. Annual Meeting (Hotel Northland). Exec. Dir., Ed Johnson, 30 E. Johnson St., Madison 3, Wis.

Oct. 18-20—Portland, Ore.
LEAGUE OF OREGON CITIES—Annual Meeting. Exec. Sec., Herman Kehrli, P. O Box 5177, Eugene, Ore.

Oct. 18-21—Cincinnati, Ohio
NATIONAL ASSOCIATION OF HOUSING AND REDEVELOPMENT OFFICIALS. Annual Convention (Netherland-Hilton Hotel). Exec Dir., John D. Lange, 1313 E. 60th St., Chicago 37, Ill.

Oct. 18-21—New Orleans, La.
AMERICAN WATER WORKS ASSOCIATION—Mississippi-Alabama Section jointly with the Southwest Section. Annual Meeting (Roosevelt Hotel). Sec.-Treas., Ernest Bryan, McWane Cast Iron Pipe Co., Box 2601, Birmingham, Ala.

Oct. 18-21—San Francisco, Calif.
LEAGUE OF CALIFORNIA CITIES. Annual Meeting (St. Francis and Palace Hotels). Exec. Dir., Richard Carpenter, Hotel Claremont Bldg., Berkeley, Calif.

Oct. 18-23—Washington, D. C.
AMERICAN SOCIETY OF CIVIL ENGINEERS. Annual Convention (Statler Hotel). Exec. Sec., William H. Wisely, 23 W. 39th St., New York 18, N. Y.

Oct. 19-22—Las Vegas, Nev.
INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION. Annual Convention (Stardust Hotel). Exec. Sec., Irvin Shulsinger, 130 W. 42nd St., New York 36, N. Y.

Oct. 19-23—Atlantic City, N. J.
AMERICAN PUBLIC HEALTH ASSOCIATION Annual Convention (Convention Hall) Exec. Dir., Berwyn F. Mattison, M.D., 1790 Broadway, New York 19, N. Y.

Oct. 22-24—Atlantic City, N. J.
AMERICAN WATER WORKS ASSOCIATION—New Jersey Section. Annual Meeting (Madison Hotel). Sec.-Treas., A. F. Pleibel, 683 Prospect St., Maplewood, N. J.

Oct. 22-24—Columbus, Ohio
STREET MAINTENANCE AND SANITATION OFFICIALS OF OHIO. Annual Conference (Neil House). Sec-Treas., William H. Moore, 71 North Union Street, Akron, Ohio.

Oct. 24-29—St. Louis, Mo.
INTERNATIONAL CITY MANAGERS' ASSOCIATION. Annual Convention (Chase and Park Plaza Hotels). Exec. Dir., Orin F. Nolting 1313 E. 60th St., Chicago 37, Ill.

Oct. 25-27—Kansas City, Kans.
NATIONAL ASSOCIATION OF MUNICIPAL UTILITIES. Annual Convention (Town House Hotel). Asst. Sec., A. D. McGuire, P. O Box 99, Overland Park, Kans.

Oct. 25-29—Houston, Texas
NATIONAL TAX ASSOCIATION. Annual Conference (Rice Hotel). Exec. Dir., Walter J. Kress, National Tax Association, 905 Payne-Shoemaker Bldg., Harrisburg, Pa.

Oct. 26-28—Minneapolis, Minn.
NATIONAL HIGHWAY CONFERENCE FOR COUNTY ENGINEERS AND OFFICIALS. Annual Meeting (Leamington Hotel). Exec. Vice Pres. Louis W. Prentiss, American Road Builders' Association, World Center Bldg., Washington 6, D. C.

Oct. 26-30—Monticello, Ill.
AMERICAN WATER WORKS ASSOCIATION—Illinois and Indiana Annual Water Works Management Short Course (Allerton Park). For information, address T. E. Larson, State Water Survey Division, Urbana, Ill.

Oct. 26-30—San Antonio, Texas
INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS. Annual Meeting (Hotel Hilton). Managing Director, Hall Colling, Suite 1120, 610 South Broadway, Los Angeles, Calif.

Oct. 28-30—Dayton, Ohio
AMERICAN WATER WORKS ASSOCIATION—Ohio Section. Annual Meeting (Biltmore Hotel). Sec., J. Howard Bass, Robert R. McGivern & Associates, 1771 W. 5th Avenue, Columbus, Ohio.

Oct. 29-31—Coos Bay, Ore.
PACIFIC NORTHWEST SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Tioga Hotel). Sec.-Treas., G. H. Dunstan, Box 176, Pullman, Wash.

Oct. 29-31—Pensacola, Fla.
FLORIDA LEAGUE OF MUNICIPALITIES. Annual Meeting (San Carlos Hotel). Exec. Sec., Gordon T. Butler, 218 W. Adams St., Rm., 301, Jacksonville, Fla.

Nov. 2-5—Mexico City, Mexico
AMERICAN CONCRETE INSTITUTE. Regional Meeting (Continental Hilton and Del Prado Hotels). For information, address Charles L. Cousins, P. O. Box 4754, Redford Station, Detroit 19, Mich.

Nov. 4-6—Roanoke, Va.
AMERICAN WATER WORKS ASSOCIATION—Virginia Section. Annual Meeting (Roanoke Hotel). Sec., E. H. Ruehl, R. Stuart Royer and Associates, 15 W. Cary St., Richmond, Va.

Nov. 5-7—Nome, Alaska
LEAGUE OF ALASKAN CITIES. Annual Meeting (City Hall). Exec. Sec., Mrs. Lucy Mick, Box 1764, Palmer, Alaska.

Nov. 7-10—Springfield, Ill.
ILLINOIS MUNICIPAL LEAGUE. Annual Meeting. Exec. Dir., A. L. Sargent, 537 S. 4th St., Springfield. Ill.

Nov. 9-11—Durham, N. C.
AMERICAN WATER WORKS ASSOCIATION—North Carolina Section jointly with North Carolina Sewage and Industrial Wastes Association. Annual Meeting (Washington Duke Hotel). Exec. Sec., D. York Brannock, 1703 Woodland Ave., Burlington, N. C.

Nov. 10-13—Atlantic City, N. J.
PENNSYLVANIA WATER WORKS ASSOCIATION—Annual Meeting (Chalfonte-Haddon Hall). Sec., David Dunlap, 2609 N. Second St., Harrisburg, Pa.

Nov. 15-18—Scranton, Pa.
PENNSYLVANIA LEAGUE OF CITIES—Annual Meeting (Hotel Casey). Exec. Dir., John N. O'Neil, 506 State Street Bldg., Harrisburg, Pa.

Nov. 15-18—Springfield, Mass.
NATIONAL MUNICIPAL LEAGUE. National Conference on Government (Sheraton-Kimball Hotel). Asst. Dir., Allen H. Seed, Jr., 47 E. 68th St., New York, N. Y.

Nov. 15-19—Tampa, Fla.
AMERICAN WATER WORKS ASSOCIATION—Florida Section jointly with Florida Sewage and Industrial Wastes Association. Annual Meeting (Hillsboro Hotel). Sec.-Treas., J. G. Simmons, Box 1311, West Palm Beach, Fla.

Nov. 16-20—Stillwater, Okla.
OKLAHOMA WATER, SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Short Course and Industrial Wastes Conference (Student Union). Sec.-Treas., H. M. Crane, 3400 N. Eastern, Oklahoma City. Okla.

Nov. 17-20—Atlantic City, N. J.
NEW JERSEY STATE LEAGUE OF MUNICIPALITIES. Annual Meeting (Chalfonte-Haddon Hall). Exec. Dir., Robert H. Fust, 603 Trenton Trust Bldg., Trenton, N. J.

Nov. 29-Dec. 2—Denver, Colo.
AMERICAN MUNICIPAL ASSOCIATION. Annual Convention (Brown Palace Hotel). Exec. Dir., Patrick Healy, Jr., 1612 K St. N.W., Washington 6, D. C.

Dec. 2-3—Washington, D. C.
ASPHALT INSTITUTE. Annual Meeting (Shoreham Hotel). For information address Asphalt Institute, University of Maryland, College Park, Md.

Dec. 3-4—Washington, D. C.
THE TAX INSTITUTE. Annual Symposium (Mayflower Hotel). Exec. Dir., Mabel Walker, 457 Nassau St., Princeton, N. J.

***Jan. 18-21—Cincinnati, Ohio**
AMERICAN ROAD BUILDERS' ASSOCIATION. Annual Convention (Netherland Hilton Hotel). Exec. Vice Pres., Louis W. Prentiss, 600 World Center Bldg., Washington 6, D. C.

***May 15-20—Bal Harbour, Fla.**
AMERICAN WATER WORKS ASSOCIATION. Annual Convention (Americana Hotel). Exec. Sec., Raymond J. Faust, 2 Park Ave., New York, N. Y.

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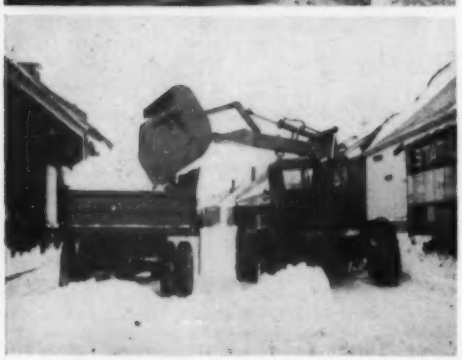

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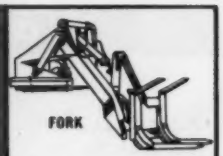
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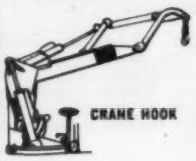
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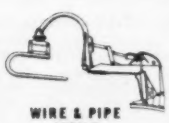
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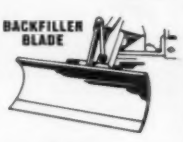
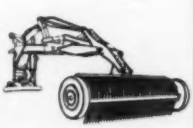
BACKHOE

CLAMSHELL


BACKFILLER BLADE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MUNICIPAL AND CIVIC PUBLICATIONS

Publications on these pages are available from the addresses indicated and are usually free unless a price is given.

Fundamental Considerations of Ground Water

GROUND WATER HYDROLOGY—*By David K. Todd. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y.* 1959. 336 *pp.* $10.75.

A unified, comprehensive account of the fundamentals and recent methods and problems encountered in the field of ground water hydrology. It deals with such problems as location and development of ground water supplies, determination of amount of water a well will yield and amount that can be pumped from wells located near each other, dangers of pollution of ground water, and control of sea water in wells near the coast.

The book also discusses problems and practices of artificial recharge, sea water intrusion and legal aspects of ground water. It is based on a broad interpretation of ground water hydrology and embraces all elements of ground water as a water supply source.

Bituminous Street Maintenance

BITUMINOUS PATCHING MIXTURES AND SEAL COATS—*Highway Research Board Bulletin 215, National Academy of Sciences—National Research Council, 2101 Constitution, Washington, D. C.* 1959. 37 *pp.* 80 *cents.*

A bulletin comprising two papers entitled "Cutback Asphalt Patching Mixtures," by J. R. Bisset, Associate Director, Engineering Experiment Station, University of Arkansas; and "Seal Coats: Laboratory Contributions Toward Better Performance," by Ernest Zube, Supervising Materials and Research Engineer, California Division of Highways. The first paper gives an account of work undertaken with the view of producing a cutback asphalt mixture for use in highway patches. The second paper describes studies relating to improvement of seal coats, including development of tests, apparatus, materials, and application procedures.

Municipal Law

NIMLO MUNICIPAL LAW REVIEW, 1959 EDITION—*Charles S. Rhyne and Brice W. Rhyne, Editors. National Institute of Municipal Law Officers, 839 17th Street, NW, Washington 6, D. C.* 597 *pp.* $10.

This volume contains the proceedings of the 1958 NIMLO Annual Conference and is a record of municipal legal experiences in 1958. In addition to the addresses, special papers and reports by NIMLO committees, it contains the transcript of all the "workshop" sessions which took place at the Conference.

Committee reports cover the latest legal developments in the fields of federal-city relations, muncipal revenues from federally owned property, public housing, urban renewal, atomic energy, civil defense, civil liberties, city-state relations, taxation and revenues, inter-municipal cooperation, annexation, public utilities, electric, gas and telephone rates, and municipally owned utilities, airports, municipal water problems, ordinances and ordinance enforcement, public records, public health, municipal officer and employee problems, tort liability, contracts, traffic and parking, and zoning and planning.

A special feature of this volume is the verbatim transcript of the five "workshop" panel discussions and the question and answer periods following each of these panels. The "workshop" covered the topics of trends in municipal liability and immunity, federal-city tax problems, the status and trends in the public utility field, litigation involving municipal officers and employees, and trends and efforts to increase municipal revenues. Several question-and-answer periods following these panels covered general legal problems confronting municipalities at that time.

Planning

COMMUNITY PLANNING—WISCONSIN. *Bureau of Government, University of Wisconsin, Madison, Wis.* 1959. 39 *pp. Mimeo. No charge.*

Another documentation of the common trend towards urbanizing what used to be a midwestern farm state. Today, two out of three Wisconsinites live in urban areas and many who do not are urban-oriented. The booklet discusses problems generated and possible solutions.

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Utility Payment for Highway Construction

ELECTRIC UTILITY NON-USER BENEFITS FROM OREGON HIGHWAYS—*By H. T. Koplin and D. A. Watson. Bureau of Business Research, University of Oregon, Eugene, Oregon. March* 1959. *Mimeo., paperbound.* 51 *pp.* $1.

This interesting little study attempts to prove that utilities, in particular, power companies, should *not* receive payments when lines are in highway rights-of-way and highway construction requires them to be moved. The authors direct their attention to rural highways but if the study creates any precedent, water mains and sewers probably will be affected.

Recommend New York Port Expansion

THE PORT OF NEW YORK AND THE MANAGEMENT OF ITS WATERFRONT—*Edited by Martin B. Dworkis. New York University, Graduate School of Public Administration, Washington Square, New York 3, N. Y. Mimeo., paperbound.* 1959. 126 *pp.* $2.50.

A group of graduate students makes a study of the New York port facilities and concludes that they would be managed best by the "authority" system, recommends expansion of the present Port of New York Authority, and that it pay the equivalent of taxes to the local governments involved.

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Civil Engineering

CIVIL ENGINEERING HANDBOOK, FOURTH EDITION—*Leonard C. Urquhart, Editor-in-Chief. McGraw-Hill Book Company, Inc., 330 West 42nd Street, New York 36, New York.* 1959. 1184 *pp.* $17.50.

Extensively revised, this handbook contains up-to-the-minute information on modern advances and developments. New and expanded material covers such topics as photogrammetric surveying, interstate highway system requirements, soil classification, flow in pipes and channels, stresses in continuous beams and frames, welded steel construction, and re-proportioning concrete mixtures for air entrainment.

This handbook, written by some of the country's leading authorities, gives hundreds of rules, principles, working methods, and engineering pointers. Subject matter covered includes mechanics of materials, stresses in framed structures, steel design, highway and airport engineering, water supply and sewage disposal, and other areas of civil engineering.

City Government in Pennsylvania

SYSTEMS FOR ELECTING GOVERNING BODIES OF PENNSYLVANIA LOCAL GOVERNMENT—*By Charles F. LeeDecker. Institute of Local Government, Pennsylvania State University, Sparks Building, University Park, Pennsylvania.* 1959. 57 *pp.* $2.50.

Mr. LeeDecker's study on the methods of electing city governments in the State of Pennsylvania should be of interest to students of civic affairs. It contains some well-balanced arguments in favor of the newer "at-large system" of election as against the older "ward" system.

Geriatrics

NURSING HOME MANAGEMENT—*By Ralph C. Williams, B.S., M.D.; Margaret Bull Armstrong, R.N.; J. Fred Gunter; Edith McCulloch, R.N.; and Jack Stiller. F. W. Dodge Corp., New York, N. Y.* 1959. 230 *pp.* $8.50.

A rather sombre little volume that will give city, county and other local government officials insight into what nursing homes should have to care properly for those of advancing years and having disabilities and chronic disorders. It will help in the preparation of proper control ordinances and will aid local health departments in seeing that nursing homes of this nature do indeed provide the type of service and protection that is required.

Swimming Pools

SWIMMING POOL DATA AND REFERENCE ANNUAL—*Swimming Pool Age,* 425 *Fourth Ave., New York* 16, *N. Y.* 1959. 425 *pp.* $5.

A good, practical reference book for park superintendents and city engineers who may be involved in the design, construction and operation of swimming pools. It contains many advertisements of swimming pool suppliers.

Assessment Practice

ASSESSMENT ADMINISTRATION IN CONNECTICUT TOWNS AND CITIES—*By Patricia Stuart. Institute of Public Service, The University of Connecticut, Storrs, Connecticut.* 1959. 34 *pp. Mimeo.* 50 *cents.*

A survey of the position of property assessor in the Nutmeg State. It describes the terms of office, method of appointment or election, methods of making assessments.

Highways and City Planning

STUDIES OF HIGHWAY DEVELOPMENT AND GEOGRAPHIC CHANGE—*By Garrison, Berry, Marble, Nystuen, and Morrill. University of Washington Press, Seattle, Wash.* 1959. 291 *pp.* $7.50.

A group of authors makes a serious effort to determine what real effects highway transportation is having and will have on land use. Sections are devoted to retail business, residential land use, customer movement and special services, such as physician's care.

Tennessee Water, Sewers and Refuse

SANITARY SERVICE CHARGES IN TENNESSEE—*Tennessee State Planning Commission, Cordell Hull Bldg., Nashville 3, Tenn.* 1959. 96 *pp. Paperbound, mimeo.* $1.

A painstaking study of charges made for water supply, sewerage and refuse disposal in nearly 300 Tennessee cities, with an indication of the type of service provided.

Fireproof Buildings

FIRE-RESISTANT CONSTRUCTION IN MODERN STEEL-FRAMED BUILDINGS. *American Institute of Steel Construction,* 101 *Park Ave., New York City.* 44 *pp. No charge to architects or engineers.*

A helpful reference particularly for a building inspector or city engineer, even though the Institute quickly points out that no building actually is fireproof.

Land Use Studies

URBAN REAL ESTATE RESEARCH—*By David T. Rowlands. Urban Land Institute,* 1200 18*th St., N.W., Washington, D. C.* 1959. 95 *pp. Paperbound.* $2 *to ULI members, students, librarians and faculty members. Otherwise* $4.

A bibliography, listing studies of urban land use and its trends since World War II. Professor Rowlands groups his review of present literature into: central business district; economic base; finance; highways and expressways; housing; industry; land planning; real estate market; shopping centers; taxation; and a few other minor headings. His summary of the literature is especially interesting in disclosing the gaps in present land use research.

How to Win Support For Water Supply

WATER UTILITY EXECUTIVE'S COMMUNITY RELATIONS PORTFOLIO. *Cast Iron Pipe Research Association,* 3440 *Prudential Plaza, Chicago* 1, *Ill.* 25 *pp. Mimeo. No charge.*

A well-prepared set of practical suggestions for any department of a municipality but prepared particularly for the water works official. Its helpful message could be strengthened by broadening the presentation to interest, and win the support of, mayor, city council, and other policy-forming officials.

The portfolio has much valuable information on such subjects as:

- contacts with newspaper, radio and TV
- organizing civic support
- generating support by employees
- using inexpensive advertising techniques

Other Reports Received

ADMINISTRATION & GOVERNMENT

AUSTIN, TEX.—Directory of Texas City Officials (1950-1956). Texas Municipal League, 402 Vaughn Building, Austin 1, Texas. 1959. 179 pp. $10.

HEMPSTEAD, N. Y.—1958 Annual Report, Town of Hempstead. Office of the Presiding Supervisor, Hempstead, Nassau County, N. Y. 1959. 30 pp.

ILLINOIS—A Citizen's Handbook of County Government. Public Affairs Research Bureau, Local Government Center, Southern Illinois University, Carbondale, Illinois. 1959. 60 pp. No charge.

ANNUAL REPORTS

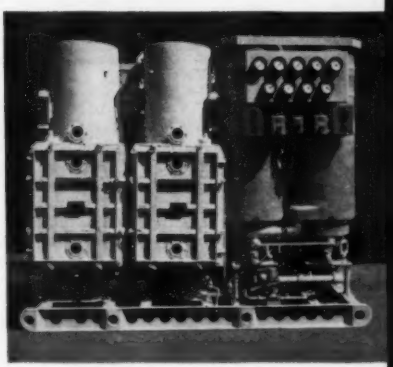
EASTON, PA.—Seventy-Second Annual Report for the Fiscal Year of 1958. Compiled by C. E. Rogers, City Clerk. 1959. 105 pp.

PHILADELPHIA, PA.—Annual Report (1958). Philadelphia City Planning Commission, Penn Square Bldg., 1317 Filbert Street, Philadelphia 7, Pa. 1959. 27 pp.

FINANCE & TAXATION

CHICAGO, ILL.—Chicago's Financial Program, 1959. By Richard J. Daley, Mayor. Office of the City Clerk, City Hall, Chicago, Ill. 1959. 31 pp.

NEW **MAXIM** EVAPORATOR STEPS UP EFFICIENCY



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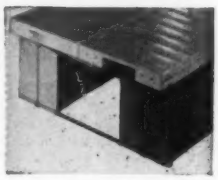

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Milwaukee 15, Wis.
BRANCHES: Paramus, N.J., Detroit, Mich.

PHOENIX, ARIZ.—Annual Financial Report. City Manager's Office, Municipal Building, Phoenix, Ariz. 1958. 25 pp. No charge.

SALEM, ORE.—Manager's Message on 1959-60 City Budget. Office of City Manager, Salem, Ore. 1959. 17 pp. No charge.

VIRGINIA—Salaries & Working Conditions of Firemen—Report #417; Salaries and Working Conditions of Policemen—Report #416. League of Virginia Municipalities, 905 Travelers Building, Richmond 19, Va. 1959. 9 and 12 pp. $1 each.

MISCELLANEOUS

TEXAS—Building Construction and Improvement Permit Fees. The League of Texas Municipalities, 402 Vaughn Bldg., Austin 1, Texas. 1958. 81 pp.

PARKS & RECREATION

BERGEN COUNTY, N. J.—Bergen County's Park Program. Bergen County Park Commission, Hackensack, N. J. 1959. 16 pp.

PLANNING, ZONING & HOUSING

COLUMBUS, OHIO—Annual Report, 1959. Development Committee for Greater Columbus, 40 South Third Street, Columbus 15, Ohio. 1959. 16 pp.

COOK CO., ILL.—A Report on the Proposed Comprehensive Amendment to the Cook County Zoning Ordinance. Office of the Zoning Committee, 130 North Wells Street, Chicago 6, Ill. 1959. 15 pp. with map. No charge.

MILWAUKEE, WIS.—Land Use and Zoning; Atlas. Metropolitan Study Commission, 306 War Memorial Center, Milwaukee 2, Wis. Unpaged. $15 each.

NEW MARTINSVILLE, W. VA.—City Plan. Ladislas Segoe & Associates, Gwynne Bldg., Main Street at Sixth, Cincinnati 2, Ohio. 1958. 90 pp.

NEW YORK, N. Y.—Housing Problems and Preferences of Aging Persons on the Site of Borgia Butler Houses—a State-Aided Low Rent Housing Project. Bureau of Research & Statistics, Albany, N. Y. 1958. 46 pp.

PALM SPRINGS, CALIF.—Central Business District Study, A Portion of the General Plan. City Planning Commission, Palm Springs, Calif. 1959. 24 pp. No charge except postage, 32c.

PHILADELPHIA, PA.—Capital Building Program. Philadelphia City Planning Commission, Municipal Building, Philadelphia, Pa. 1959. 179 pp. No charge.

TENNESSEE—Reservoir Shoreline Development in Tennessee—A Study of Problems and Opportunities. Tennessee Planning Commission, C1-118 Cordell Hull Bldg., Nashville 3, Tenn. 1958. 77 pp. $1.

VANCOUVER, WASH. — Adopted Comprehensive Residential Land Use Plan. The Mayor's Office, Municipal Bldg., Vancouver, Wash. 1958. 40 pp. $1.

WASHINGTON, D. C.—Land Planning Consideration in the Washington Metropolitan Area and Government Agencies Concerned with Land Use, Planning, or Conservation in the Washington Area. The U. S. Government Printing Office, Washington 23, D. C. 1958. 12 pp. and 22 pp., respectively.

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new - HAND SIGNS

Here's a new 18" two-sided Lightweight Aluminum hand sign for schools, rail crossings, construction crews, utilities, industrial plants, etc.

WRITE FOR A QUOTE OR A CATALOG

GRIMM STAMP & BADGE CO.
8105 Rosalie • St. Louis 17, Mo

Faster LOCATING!
LOWER SERVICE COSTS
with the Improved AQUA VALVE BOX LOCATOR!

STOCK this useful tool for every service CAR and CALL •

Speed • Locating • Keep Customers Happy

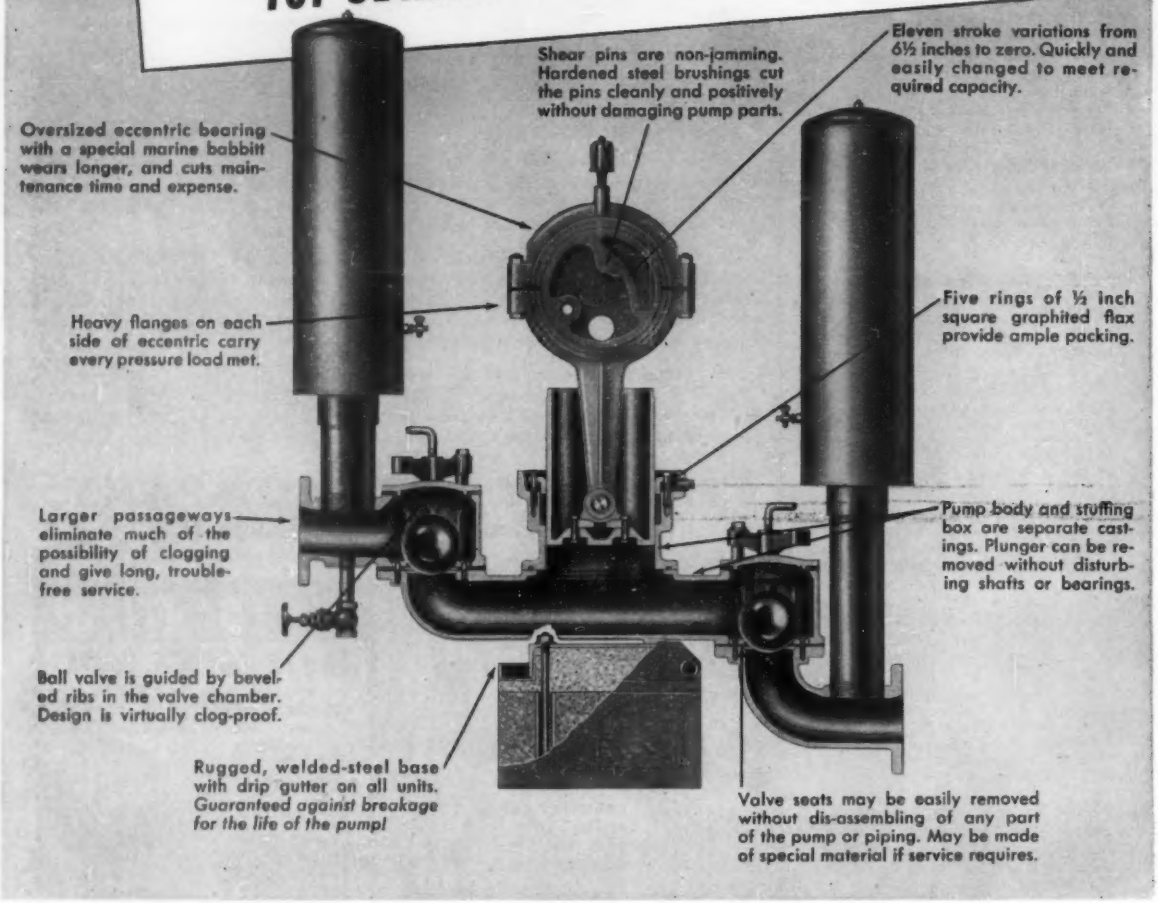
- NO WIRES, BATTERIES or SWITCHES—simple, powerful magnetic action, factory adjusted to YOUR geographical location assures unfailing results!
- NO NEEDLE SPINNING—exclusive electric braking action saves you time!
- NO STOOPING—easy top-view reading!
- RUGGED—compact, accurate, convenient!
- GUARANTEED—to function regardless of weather, surface or ground cover!
- NATION'S MOST WIDELY USED LOCATOR!
- 15-DAY FREE TRIAL—No money! No obligation! You be the judge!

ORDER NOW - Wire or Call Kirby 1-4200 collect

AQUA SURVEY & INSTRUMENT CO.
2010 Leslie Ave., Cincinnati 12, Ohio

Marlow Sludge Pumps

for SEWAGE TREATMENT PLANTS


Shear pins are non-jamming. Hardened steel brushings cut the pins cleanly and positively without damaging pump parts.
Eleven stroke variations from 6½ inches to zero. Quickly and easily changed to meet required capacity.
Oversized eccentric bearing with a special marine babbitt wears longer, and cuts maintenance time and expense.
Heavy flanges on each side of eccentric carry every pressure load met.
Five rings of ½ inch square graphited flax provide ample packing.
Larger passageways eliminate much of the possibility of clogging and give long, trouble-free service.
Pump body and stuffing box are separate castings. Plunger can be removed without disturbing shafts or bearings.
Ball valve is guided by beveled ribs in the valve chamber. Design is virtually clog-proof.
Rugged, welded-steel base with drip gutter on all units. Guaranteed against breakage for the life of the pump!
Valve seats may be easily removed without dis-assembling of any part of the pump or piping. May be made of special material if service requires.

Marlow makes a complete line of plunger sludge pumps. They are available in Simplex, Duplex, Triplex, and Quadruplex designs with 7-, 9-, or 11-inch plunger diameters. Capacities range up to 500 gallons per minute with pressures up to 125 pounds per square inch. These pumps can be used for a wide range of application including handling raw and digested sewage sludges, industrial and chemical waste and slurries, lime putty and slurries, pulp and paper stock, settled oil solids, oil refinery sludges, distillation mashes, sugar bagasse, gum and chicle slurries, meat packing wastes, fish packing wastes, cannery wastes, tannery fleshings, etc.

Marlow PUMPS®

MARLOW PUMPS® DIVISION OF BELL & GOSSETT CO.

MIDLAND PARK, NEW JERSEY

Morton Grove, Illinois — Longview, Texas

S-385

YONKERS, N. Y.—General Guide Plan. The City Planning Board, Health Center Building, Yonkers, N. Y. 1958. 60 pp.

SEWERAGE & SANITATION

CINCINNATI, OHIO—Sewage Disposal. Department of Public Works, 1600 West Gest Street, Cincinnati 4, Ohio. 1959. 77 pp. No charge.

MIDDLESEX CO., N. J.—Operations Report. Middlesex County Sewerage Authority, Sayreville, N. J. 1959. 24 pp. No charge.

WASHINGTON, D. C.—Annual Report Washington Suburban Sanitation. Washington Suburban Sanitation Commission, Hyattsville, Md. 1959. 66 pp. No charge.

REPRESENTATIVE MUNICIPAL BOND ISSUES
From August 4th to September 1st, 1959

Date of Issue	*Locality*	*Amount in $1000*	*Purpose*	*Term Yrs. to Maturity*	*Rate of Int.*	*Yield %*
8/ 4/59	Pascagoula, Miss.	500	Gas Revenue	1 to 20	4¼ to 4½	4.49
8/ 5/59	Perth Amboy, N. J.	900	Water	11¾	4¼	4.11
8/ 6/59	Revere, Mass.	510	General Improvement	3 to 5½	3¾	3.74
8/10/59	Ann Arbor, Mich.	775	Sewer Revenue	1 to 22	3¾ to 4½	3.92
8/11/59	Geneva, N. Y.	500	Public Improvement	10½	3½	3.43
8/12/59	Ocala, Fla.	1,200	Electric Revenue	12½	3½	3.66
8/13/59	Monroeville Water Auth., Pa.	2,275	Water Revenue	2 to 40	3 to 4¾	....
8/17/59	Henderson, Nev.	666	Street Improvement	....	....	5.95
8/18/59	Atlanta, Ga.	3,000	Airport Revenue	1½ to 30	4 to 4¾	4.07
8/19/59	Pawtucket, R. I.	700	Temporary Loan	10 mos.	....	2.18
8/20/59	Needham, Mass.	1,000	School and Library	10½	3¾	3.33
8/24/59	Bedford, Ohio	634	Street and Sewer	....	4¼	4.07
8/25/59	Bridgeport, Conn.	2,675	General Improvement	7 to 10½	3¼	3.23
8/26/59	Holland, Mich.	4,000	Electric Revenue	¾ to 30	4 to 5	4.04
8/27/59	Brigham City, Utah	500	Water General Obl.	4 to 20	3½ to 4½	3.72
8/27/59	St. Petersburg, Fla.	2,650	Gas Plant Revenue	15¾	5	4.99
8/28/59	Harrisonburg, Va.	600	General Improvement	8	3¾	3.36
8/31/59	Dallas, Texas	5,000	Water and Sewer Rev.	1 to 20	3¾ to 5	3.64
9 /1/59	Avon Lake, Ohio	2,250	Sewer General Obligation	7	4¼	4.01
9/ 1/59	Tucson, Arizona	5,000	Water Revenue	½ to 19	4½ to 5	4.53

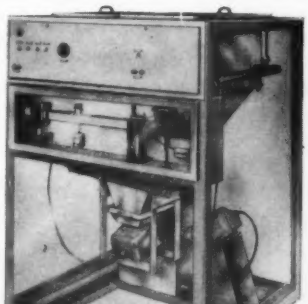
Compiled from **THE BOND BUYER**

NEW!

SYNTRON

DIMINISHING BATCH

WEIGH FEEDER MACHINES



For accurate, dependable, continuous weigh feeding of dry chemicals in water and sewage treatment

— designed to provide an accurate, continuous feed of dry chemicals in pounds per hour at any desired, predetermined rate from 3 pounds to 300 pounds per hour.

To accomplish this accuracy of feed, the discharge rate of the vibratory feeder is electronically controlled to automatically maintain the load in the hopper as the position of the poise is retracted by a synchronous motor on the lead screw of the scale beam. This keeps the scale beam in balance during the feeding cycle from fully loaded hopper to empty hopper.

If you have a bulk material weigh feeding problem SYNTRON Diminishing Batch Weigh Feeder Machines will fill your need accurately.

For complete information write for catalog data.

SYNTRON COMPANY
430 Lexington Avenue — Homer City, Penna.

NOW...You Can SLASH Trench Costs

Model M-3, 9 HP, Illustrated

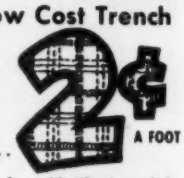
Amazing Trenchers

MODELS: C-3, 7 HP • M-3, 9 or 12 HP

DITCH WITCH

Produces Low Cost Trench

... overall cost less than any other machine or method! Usually about ...



HOW IT'S BUILT: 7, 9 or 12 HP air cooled engine, 3-speed transmission, sealed ball bearings, 20M lb. test steel digging chain, replaceable teeth Studite edged, telescoping tubular steel boom, screw jack depth control —rugged throughout!

WHAT IT WILL DO: Trench at speeds up to 12 FPM, widths 3" to 12", depths 2' to 5', digs in any soil. Countless applications for utility service lines, gathering systems, signal systems, cathodic protection, street lighting, sprinkler systems, road crossings, footings.

CHARLES MCH. WKS., INC. PERRY, OKLA.

Distributors throughout the world sell, rent and service Ditch Witch trenchers. Write, wire, or call for information. Phone FE 6-4404.
CALL COLLECT FOR DEMONSTRATION.

Charles Machine Works, Inc.
603 Birch St., Perry, Okla.
Gentlemen: Please send the information checked, at no obligation.
☐ Demonstration ☐ Rental Information
☐ Contractor's Service ☐ Literature
Name _____
Address _____
City _____ State _____

The Hersey Mfg. Co. plant, Dedham, Mass., located on Boston's circumferential highway, houses administrative, research and production facilities.

W. P. Hersey

R. C. Sparling

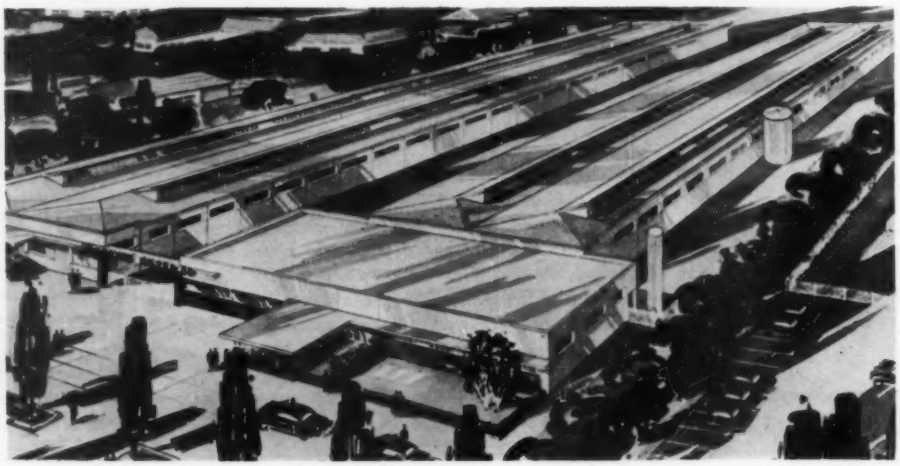
Prominent Water Meter Manufacturers to Merge

Directors of the Hersey Manufacturing Company, Dedham, Mass., and Sparling Meter Company, El Monte, Calif., have approved a merger, effective January 1, 1960 pending approval by stockholders of both firms.

This merger joins two old-line companies in the field of water measurement and control. Together they will cover the widest range in size and capacity of metering of any manufacturer in the industry—from small household models up to meters for pipe as large as 19 feet in diameter, including special-purpose installations such as Sparling equipment in atomic submarines and Hersey back-flow prevention devices.

The consolidated company, to be known as Hersey-Sparling Meter Co., will have manufacturing and distribution centers on both East and West coasts, and branch sales offices in 11 major U. S. cities. Affiliation with Tylor's of London, Ltd., a 200-year-old British manufacturer of water and industrial meters which will manufacture Sparling meters and recording equipment, will provide the company with a base of operations throughout the British Commonwealth and Europe.

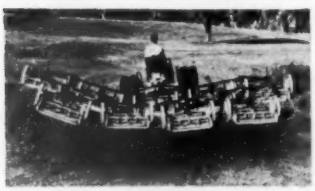
Hersey Manufacturing Co. started



The Sparling Meter Co. plant at El Monte, Calif., where the Sparling meter line and former Masterflo line are produced.

FIRST CHOICE
FOR TURF MAINTENANCE

With the Worthington Model "F" Tractor and "Wing-Lift" hydraulic control you can now mow in areas previously cut with a power mower. "Wing-Lift" offers a choice of either three, four or five cutting units at the touch of your hand.



The Model "G" Tractor is truly a unit that can go everywhere and mow everywhere. Geared specifically for mowing, the Model "G" has power to spare. It can pull 9-gang units in areas inaccessible to other tractors.

WORTHINGTON MOWING EQUIPMENT

Now here's a tractor that combines all the advantages of the famous Worthington Model "G" Tractor with the utility and carrying capacity of a light truck—the "Utility" Dump Body Tractor.

Try this unique new unit on your own grounds and see how it can pull gang mowers, carry dirt, sand, fertilizer or tools, making it an all purpose tractor for turf use. Notice how easy it is to lift equipment in and out of the body that is *only 23½ inches from the ground!* Here's a tractor that's just made to take the back ache out of large area grass maintenance.

It's easy to arrange for a "NO OBLIGATION" demonstration and job test Worthington on your own grounds. Your authorized Worthington Dealer will help you select the right equipment to answer your turf maintenance problems. Just use the coupon below to arrange an on-the-job test or request complete literature.

WORTHINGTON MOWER COMPANY
STROUDSBURG, PENNSYLVANIA
Subsidiary of Jacobsen Manufacturing Company, Racine, Wisconsin

The most complete line of large area grass maintenance equipment in the world!

9-048

WORTHINGTON MOWER COMPANY
Stroudsburg, Pennsylvania

Gentlemen:
- ☐ Please send complete literature
- ☐ Please arrange a "NO OBLIGATION" demonstration

Name_____ Title_____

Address_____

City_____ Zone___ State_____

Cut snow removal costs up to 50%

Gar Wood

SNOWLIFT

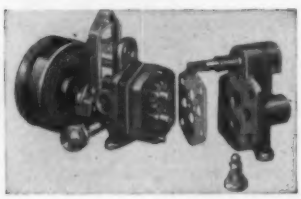
HYDRAULIC SNOW PLOW CONTROL

featuring the **ALL-NEW, FASTER ACTION**

HYDRA-CLUTCH® PUMP

Exclusively from Gar Wood, the Snowlift Kit features the only clutch-type pump available for snow plow control. With the Hydra-Clutch Pump, the pump gears are set in motion only when lifting the plow blade. This means far less wear and longer life for the pump. In addition, this hydraulic system puts no drain on the battery.

Here's the "POWER PLANT" of the New SNOWLIFT



The Hydra-Clutch Pump develops tremendous power... blade can be raised completely in six seconds to avoid open spaces or obstacles. The Snowlift Kit consists of the Hydra-Clutch Pump, cylinder and the complete hydraulic system.

Get the "cost cutting" story on the new Snowlift from your Gar Wood distributor or snow plow dealer.

Wayne, MICHIGAN

Richmond, CALIFORNIA

Gar Wood INDUSTRIES, INC.

SKYWORKER cuts light maintenance costs up to 50%... improves safety, too

By using SKYWORKER aerial lifts, numerous city and state governments have found this to be true: Group replacement of lights is made easy . . . replacement of up to 125 lights a day becomes common.

Light replacement is accomplished quickly and conveniently, even along streets lined with parked cars. And, *the speed of replacement results in labor cost savings up to 50%.*

In addition, their SKYWORKERS are used in hanging and servicing traffic signals, in tree trimming, in fire fighting and rescue, as well as in dozens of other jobs for which they were adapted and for which they have proved to be invaluable time and cost savers.

Write today for complete details including how you can lease a SKYWORKER for a year for as little as $2.38 an hour.

EMHART MANUFACTURING COMPANY
SKYWORKER DIVISION
HARTFORD 1, CONNECTICUT

a century ago when two men, Walter E. Hawes and Charles H. Hersey, formed the partnership of "Hawes & Hersey." That year Charles Hersey's design of a rotary pump was awarded the first of 104 patents assigned to the firm. In 1885 the manufacture of water meters began under the Hersey name and in 1905 the company patented a fire service meter which, with further development and improvement, still sets the standard for this type of meter.

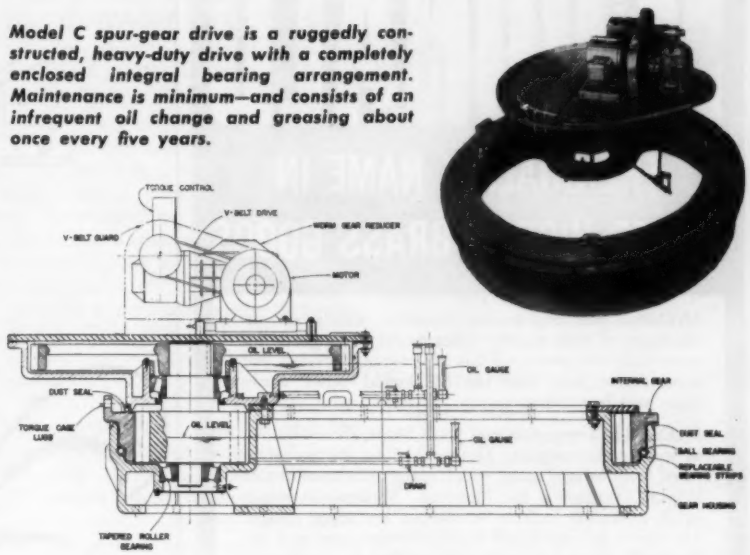
The company's new plant, located on Boston's famous circumferential highway (Route 128) was completed in 1957 and houses administrative, research and production facilities, including a bronze foundry with unique mechanical sand handling system and electric melting furnaces. Its West Coast branch at Monterey Park, Calif., is active in the field of volumetric flow testing equipment for jet aircraft fuel.

Sparling Meter Company had its beginning in 1912, when R. W. Sparling formed an organization to sell water-well drilling supplies throughout Southern California. In 1915 it began manufacturing the Sentinal Recording Weir Gauge and in 1919 the Sentinal Irrigation Water Meter. The company's Main Line meters were first produced and sold in 1924. In December 1949 Sparling Meter Company was incorporated. January 1956 saw Masterflo Meter Co., incorporated in 1947 under the direction of Ray C. Sparling (R.W.'s son) for the purpose of manufacturing irrigation meters, merge with Sparling Meter Co., with Ray C. Sparling taking over as president. The company moved to its new El Monte, Calif. plant in 1957, where both the Sparling meter and Masterflo lines are produced.

Both Winthrop P. Hersey, president of Hersey Mfg. Co. and president-designate of Hersey - Sparling Meter Co., and Ray C. Sparling, vice - president - designate, feel that one of the many benefits of this merger will be the increased opportunity it offers for diversification and expansion. They anticipate a steady growth in sales as new products for liquid measurement and control in municipal water and sewage systems, irrigation and industry are developed or acquired.

Executive offices of the combined organization will be in Dedham, Mass.

Model C spur-gear drive is a ruggedly constructed, heavy-duty drive with a completely enclosed integral bearing arrangement. Maintenance is minimum—and consists of an infrequent oil change and greasing about once every five years.



New Drive Head for Rota-Rake Clarifiers

With the introduction of the Model C, there are now four drives available for the Rota-Rake, a horizontal flow water and liquid treatment unit for gravity and sludge thickening.

This new drive head is a horizontal spur-gear drive for heavy-duty applications and has a fully enclosed, integral gearing arrangement. Gears operate in an oil bath and are of Mechanite cast iron, as is the housing. Anti-friction ball and roller tapered bearings are used throughout and the pinions are of forged steel. Model C operates smoothly and quietly with little wear and minimum maintenance.

According to the manufacturer, development of the Model C is indicative of the improvements and expansion that have been made in the Rota-Rake line, which now consists of four unit types.

Features emphasized in Rota-Rake design as being particularly desirable are: (1) the submerged orifice plate water collection system which collects clarified water 4 inches below the surface and therefore is unaffected by undesirable surface conditions; (2) a hydraulic lifting device on the sludge scraper arm which assures scraper's rotation under heaviest load and overload conditions, and (3) a new overload indicating device which can sound an alarm and shut down the unit when desired.

For additional information, write Graver Water Conditioning Company, 216 W. 14th St., New York 11, N. Y., or use the Post Card on Page 54. Circle No. 986.

Plants Cut Costs with Aluminum Grating

Municipal sewage and water purification plants can provide themselves with walkway gratings that combine light weight with corrosion resistance, low maintenance, high load carrying capacity, nonsparking and nonslippage. The all-aluminum Extrud-Lock grating is available in 1", 1¼", and 1½" thicknesses, in 6-inch wide extrusions and in any specified length. It features snap-lock method of field assembly which eliminates the need for welding.

This method of fastening adjacent extruded sections consists of an aluminum clip which is easily hammered into place. Any width of panel can be assembled in the field or at the job site, and according to the manufacturer, no power tools or welding equipment are needed. The aluminum clip ties together the interlocking I-beams on the mating

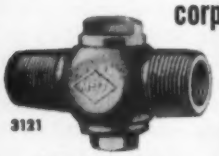
McDONALD

THE QUALITY NAME IN WATER WORKS BRASS GOODS

McDonald has been serving American cities as a manufacturer of high quality water works brass goods for more than 100 years. All this experience in design and manufacture goes into the McDonald water works brass you buy today.

McDonald Corporation and Curb Stops, shown below, as well as the complete McDonald line, are manufactured from bronze metal which meets American Water Works Association specifications. McDonald gives easier operation because of steeper key taper design. All valves are machined to exact tolerances and individually lapped to guarantee perfect fit. McDonald valves are rigidly inspected and tested in both open and closed positions and are available in a wide range of sizes to meet your requirements.

corporation stops



3121

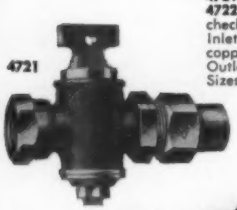
3121 — Without coupling.
Inlet — A.W.W.A. corporation stop thread.
Outlet — Increasing iron pipe thread (⅝" size has ¾" I.P. Thread.)
Sizes — ½", ⅝", ¾", 1", 1¼", 1½", 2".

4701 — with straight coupling nut (no gasket).
Inlet — A.W.W.A. corporation stop thread.
Outlet — Standard A.W.W.A. thread for copper service pipe.
Sizes — ½", ⅝" x ¾", ¾", 1", 1¼", 1½", 2".

4701

curb stops • round way • solid tee head

4721 — Stop.
4722 — Stop and Drain — with check (not illustrated).
Inlet — A.W.W.A. thread for flared copper tube.
Outlet — Inside I.P. thread.
Sizes — ½", ¾", 1", 1¼", 1½", 2".



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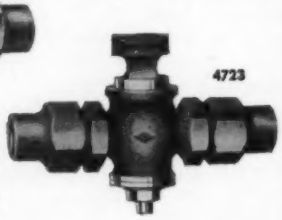


4723

4723 — Stop.
4724 — Stop and Drain — with check (not illustrated).
Inlet — A.W.W.A. thread for flared copper tube.
Outlet — A.W.W.A. thread for flared copper tube.
Sizes — ½", ⅜", 1", 1¼", 1½", 2".

For information on McDonald's complete line, write for free catalog.

A. Y. McDONALD MFG. CO.
Dept. AC-1059, 12th & Pine
DUBUQUE, IOWA

You name the place

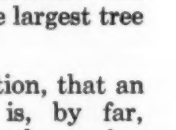
. . . and *without obligation to you*, a qualified representative will arrange a prompt demonstration of the fastest, most economical chipper in the world.

Then you can see for yourself how aggressive is the new power unit of ASPLUNDH CHIPPERS; how it hungers for great loads of bulky brush; how easily it consumes limbs of 6" diameter.

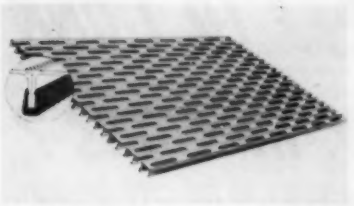
And remember, the efficiency and economy of the completely safe, simply designed ASPLUNDH CHIPPER has been *proven in service* by the largest tree company in the world.

You will see, in demonstration, that an ASPLUNDH CHIPPER is, by far, the best buy in chippers on the market today.

WRITE TODAY for FREE illustrated folder and for a demonstration.



ASPLUNDH CHIPPER COMPANY
505 York Road, Jenkintown, Pa.
By Actual Test the Fastest Chipper Made



Extrud-Lock aluminum grating panel, consisting of four 6-inch widths permanently fastened together by snap-lock clip. Inset shows the locking clip which remains in tension to insure tightness and dimensional stability.

edge of each section, and remains under tension to insure tightness and dimensional stability.

For complete engineering and specification details, write CAPITOL PRODUCTS CORP., MECHANICSBURG, PA., or use the Post Card on page 54. Circle No. 962.

Precision-Calibrated Measuring Wheel

Designed for all-around outdoor measuring, Model 415, supplements an extensive line of accurate, dependable measuring wheels offered by Rolatape, Inc. It can be rolled over irregular and uneven terrain, can be operated by one man, registering measurements up to ½" on one side of the disc wheel and tenths of a foot on the other, up to 100,000 feet. Curves and contours are measured just as easily as straight, flat surfaces, according to the manufacturer. It also can be operated from a car window, at slow speeds. For further information, write ROLATAPE INC., 1741 14TH ST., SANTA MONICA, CALIF., or use the Post Card on Page 54. Circle No. 964.

Improved Steel for Crawler Tractors

A new metal having the advantages of both deeper hardening and high internal strength promises to aid in giving considerable increased life to crawler tractor components.

The metal is a product of Caterpillar metals research, and according to a company metallurgist this new deep-hardenable steel allows heat treatment to harden the metal to approximately ¼" depth, as compared to a previous hardness depth of ⅛". This it is said, will lead to an increase in wear life of parts of up to 40%.

Track links, shoes and rollers now being installed on Cat D8 and D9 tractors are being fashioned from this new steel. (All three parts are offered as standard equipment or replacement). In the track link, the new steel is reported to not only increase rail life, but to hold the track pin in position more effectively. It is also more resistant to pounding out from pin and bushing action. For additional information, write CATERPILLAR TRACTOR CO., PEORIA, ILL., or use the Post Card on Page 54. Circle No. 954.

Chainless, Beltless Spreader Has Up-front Convenience

Engineering highlight of the new Hi-Way Model Y ice control spreader is a one-piece chainless, beltless, flightless 24" conveyor. The all-steel conveyor system uses an oscillating motion to move materials. It even handles frozen lumps without difficulty, for the shaker motion tends to break up lumps and frozen materials.

The "up front" location of the spinner enables the operator to observe the thoroughness of the spread (which saves material), and it spreads material in front of rear wheels for extra traction.

The spreader is operated by one man from the cab. An 18-hp rear-mounted engine drives the conveyor and hydraulic system. The 20" spinner is hydraulically operated and spreads from two to four lanes wide with ease.

For literature and complete specifications, write HIGHWAY EQUIPMENT CO., DEPT. H1-5, 616 "D" AVENUE, N.W., CEDAR RAPIDS, IA., or use the Post Card on Page 54. Circle No. 952.

The Model Y spreader, developed especially for ice control work, overcomes common breakdowns caused by frozen materials.

Enters Plastic Pipe Field

Glamorgan Pipe & Foundry Company, Lynchburg, Va., one of the oldest manufacturers of cast iron pressure pipe and fittings, has created a new Plastics Division to manufacture and sell rigid polyvinyl chloride pipe. According to John D. Capron, company president, a new, technically advanced extrusion plant to produce the PVC pipe has been constructed at the Glamorgan properties in Lynchburg.

William E. Enright, sales director for the new division, will headquarter at the General Sales office in Lynchburg. District offices will be located in Chicago and New York City. A complete staff of trained representatives will handle nationwide sales of the PVC pipe. Marketing efforts will be directed at the petroleum, chemical, petrochemical and food processing industries; small-diameter service pipe will be produced for the water utilities and gas industries.

Rubber Cushioned Boat Bumper

This bumper is unusual in design: it is vertical, instead of horizontal, and unlike horizontal models protects the gunwale by preventing it from touching the boat dock. It also avoids scraping, scratching, marring or gouging of the boat itself in marina or dock.

Developed by Standard Steel, the new vertical bumper is 3 feet long, made of soft, strong air-cushioned rubber, and is secured in a sturdy steel mounting channel. (Mounting brackets and braces, with necessary nuts and bolts are provided.) Holes in the mounting frame permit adjustment in height to com-

HAVE YOU STOPPED TO THINK ABOUT SAFETY IN SIGNS?

Signs made to control traffic have to be seen and read – day in, day out, year after year. That's why you're safe when you install Miro-Flex signs. They are embossed for greater strength, rigidity, and legibility. Because they are made on zinc-coated, Bonderized steel, and finished with high-grade, baked-on enamel, they still do their duty years after ordinary signs have been replaced. A complete line of Uniform Traffic-Control Signs, Street-Name Assemblies, and custom-designed signs are available. Write for free catalog.

Embossed MIRO-FLEX SIGNS LAST and LAST . . .

THE **MIRO-FLEX** CO., INC.

1824 EAST SECOND **WICHITA 7, KANSAS**

Standard Traffic Signs Available for Immediate Delivery at Northeastern Warehouse

Koontz Equipment Corporation, 325 Ohio River Blvd., Emsworth, Pittsburgh 2, Pennsylvania

New York's Successful "CHAIN GRATE" Incinerator

The above Incinerator was installed in New York City's Gansevoort Refuse Displosal Plant.

Why has our Design proven Best by Test?:

- Cast steel grate surface—non-breakable, trouble-free operation.
- More tuyere sections for better distribution of air.
- Front take-up is easily accessible to operator.
- Patented cast steel links, over-lapping to prevent fouling.
- Continuous discharge of refuse from grate surface.
- Applicable to largest incinerators up to 24-feet wide.
- Minimum labor and maintenance required for operation.
- No heavy stoking or cleaning of fires . . . ease of operation.

ILLINOIS STOKER COMPANY
ALTON, ILLINOIS

The Campbell Sliding Cab - - -

for models HU, HH, HO, H30R, H50, H70, and H90

"Payloaders"!!!

This sturdy, modern design offers features long desired by "PAYLOADER" operators, among them—Sliding top, ball bearing mounted on steel channel—Rubber seals to insure weather tightness—Permanently mounted access ladder —Rear view mirror—Tinted safety glass windshield and skylight.

Investigate this completely new design in "Payloader" Cabs by calling your "Payloader" distributor, or contact

CAMPBELL DETACHABLE CAB CO.
WAUCONDA, ILLINOIS

pensate for water level or boat size. Special "tripod" mounting brackets are available for securing the new bumper bottom to floating dock pontoons, in addition to top brackets.

The bumpers are available in pairs, for either rigid-type leg-supported piers or for pontoon-floated docks or marinas. Their pair price is only $18. Available as accessories are boat tie-down cleats, which bolt into the dock. For additional information, write STANDARD STEEL PRODUCTS MFG. COMPANY, 2836 S. 16TH ST., MILWAUKEE 15, WIS., or use the Post Card on Page 54. Circle No. 983.

Organizes Consulting Firm

Prentice C. Ford Associates, Inc. has been organized to provide consulting services to schools, municipalities and businesses.

Recognizing that effective physical planning of schools or any facility must be dovetailed with existing or proposed plans for the community, the organization will render services that include: community planning services for general master planning; capital improvements programming; urban renewal projects and/or specific limited studies such as population analyses, land use planning, studies of community facilities.

According to Prentice C. Ford, former publisher of three Buttenheim Publications, *The School Executive*, *Educational Business*, and *American School and University*, every study will be tailored to a community's special needs and problems.

Associated with Mr. Ford are Dr. Cyril G. Sargeant, Philip W. Jones, Roland E. Hood, Jr. and Peter B. Dorran. Headquarters for the new organization are at 350 Fifth Ave., New York 1, N. Y.

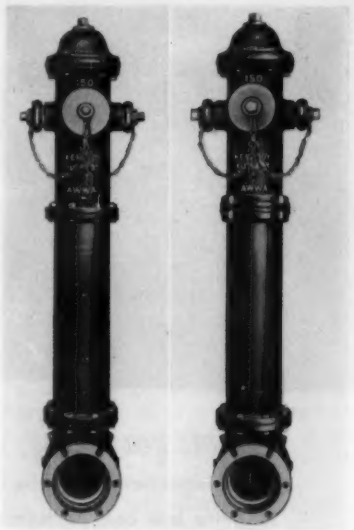
Fire Hydrants for Municipalities

These hydrants have been designated as the K series and consist of a Standard model and a Safetop model.

The K-10 Standard model has bolted standpipe section which makes nozzle rotation easily available. It is made in 4", 4½" and 5" with a variety of pipe and connections to meet every need.

The K-11, the Safetop model, includes all the refinements incorporated in the K-10, but in addition has the Kennedy Safety Breakable Section which, on smashing impact, breaks cleanly apart without loss of water or damage to the major, costlier parts of the hydrant.

Both models feature "O" Ring construction for weather seal and pressure seal; both contain a minimum number of parts. All working parts can now be easily removed for maintenance or repair without excavation. And another new feature, the Alemite fitting located in the operating nut, assures easy, fast lubrication. Additional information can be obtained by writing to KENNEDY VALVE MFG. CO., ELMIRA, N. Y., or by using the Post Card on Page 54. Circle No. 972.



Models K-10 and K-11, fire hydrants new to the Kennedy line.

Radiation Monitoring Equipment for City Water Supply Systems

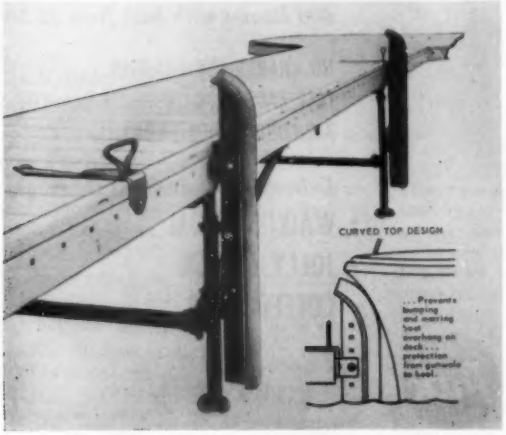
A super-sensitive monitoring system, designed to keep constant check on traces of radioactivity in water supply systems, is about to be placed in operation in Philadelphia, Pa.

Developed by Victoreen Instrument Co., Cleveland, Ohio, this scintillation flow system will be connected into the city's water supply at one or more key points, so that its crystal detector, sensitive to both beta and gamma rays, is exposed to flow at all times. The detector is housed in a heavy stainless steel-lined 3-inch lead shield, to exclude normal atmospheric radiation.

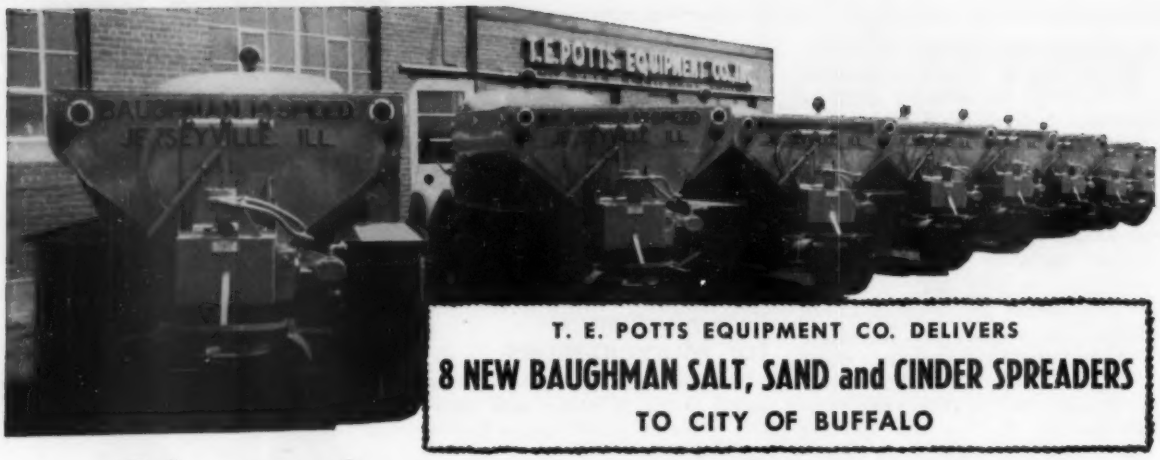
Water flows through the housing continuously. Trace amounts of radioactivity general a signal which is amplified by a device that controls the marking pen on the chart. The equipment incorporates an analyzer which makes it possible to identify a particular contaminant in the flow.

The equipment records the small, harmless radiation always present in any water supply or sewage system, and immediately registers any significant increase, providing a complete safety control system.

The equipment automatically checks itself every two hours. A tiny particle of strontium 90 is edged into place near the detector



The special curved top design of this vertical bumper fully protects the boat gunwale by preventing it from touching or "hanging" on the boat dock.



T. E. POTTS EQUIPMENT CO. DELIVERS

8 NEW BAUGHMAN SALT, SAND and CINDER SPREADERS

TO CITY OF BUFFALO

Before you specify, consider how operating efficiency will be increased and long-life low cost performance assured, with these important Baughman ice control features:

LUBE-IMPREGNATED CHAIN DISCHARGE . . . a Baughman exclusive, positively insures greater corrosion resistance and virtually eliminates chain freezing.
TOUGHEST CHAIN DISCHARGE of any ice control body . . . total test strength of 40,000 lbs.
STRONGEST BODY MADE . . . with reinforced top edge, extended side jacks and internal bracing for full body support.
FEWER WORKING PARTS . . . less maintenance, yet positive spreading with even, quick, safe discharge.

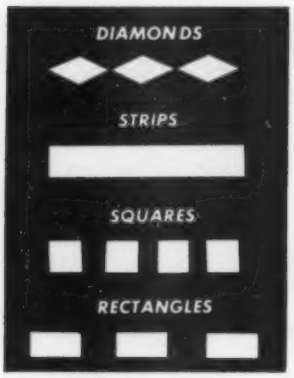
WRITE TODAY for illustrated Bulletin A-408-B.

Better Service Through Better Engineering.
Service and Parts from 200 Service Branches.

BAUGHMAN

BAUGHMAN MANUFACTURING CO.

216 SHIPMAN ROAD JERSEYVILLE, ILL.



SAVINGS AND SAFETY WITH REFLECT-O-MARKERS

REFLECT-O-MARKERS are a proven product having been in use on CITY STREETS, COUNTY ROADS, STATE HIGHWAYS and TURNPIKES for several years. REFLECT-O-MARKERS have proven their SUPERIOR WEAR LIFE, SUPERIOR REFLECTIVITY, SUPERIOR-FLEXIBILITY and are NON-SKIDABLE and SELF CLEANING. REFLECT-O-MARKERS are EASILY and QUICKLY applied to ANY SURFACE in any month of the year with COLD QUICK SETTING PERM-O-MASTIC. REFLECT-O-MARKERS can be purchased in THREE thicknesses, various sizes, shapes, strips, legends, numerals, and directional arrows all prefabricated for immediate shipment.

Write today for our FREE 12 page illustrated TRAFFIC CONTROL MANUAL EMC-60.

REFLECT-O-MARKER DIVISION
ELECTRO-METALS CORPORATION
25 North Pine St. Indianapolis 2, Ind. Phone Melrose 6-5201

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600 Rooms with bath from $5.50

NO CHARGE FOR CHILDREN
FREE RADIO AND TV
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Delicious Cuisine and Beverages

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- **COFFEE SHOP**

FEderal 3-3177
Thomas P. Ryan, mgr.

ALWAYS THE BEST FOR EVERY GUEST
ALBERT Pick HOTELS

at this interval, and will produce a reaction of known quantity if the device is registering accurately. Absence of this bulge on the strip chart recording at two-hour intervals would immediately indicate failure or malfunction, and set off a bell or other aural alarm as well.

Philadelphia is believed to be the second city engaged in 24-hour measurement of radioactivity in its water supply; Ann Arbor, Mich., installed such a unit several years ago mainly because of nuclear research at the University of Michigan at Ann Arbor.

Cleveland has such equipment under study, and would seek to prevent any significant contamination from reaching Lake Erie, Cleveland's water supply, through the sewage disposal system.

For complete information on Victoreen radiation monitoring units for city water supply systems, write VICTOREEN INSTRUMENT CO., CLEVELAND, OHIO, or use the Post Card on Page 54. Circle No. 955.

Newark Brush Expands

Upon completion of its building program, started in early August of this year, Newark Brush Company, 260 Michigan Ave., Kenilworth, N. J., will achieve 50% additional manufacturing and handling space.

Equipment to be installed is expected to increase efficiency, while a new shipping and receiving dock will speed flow of completed Danline wire street sweeper brushes. In a new and improved test room, all wire used in the manufacture of Danline brushes will be thoroughly tested to maintain quality and uniformity of product.

Universal Snow Plow Coupling

This economical snap coupling for snow plows embodies a hustling hitch and enables one man to snap-couple a snow plow and truck in just three seconds without leaving the cab.

According to the manufacturer, these job-tested units permit any truck to be used with any plow. Lateral plow motion permits moving of the blade up and down with blade parallel to road. There is no need for tilting and resulting loss in scraping efficiency. Spring pin action is the secret. Spring loaded pins snap into slots when the truck is driven up to the plow. The left arm is automatically in position to lift and carry the plow without the use of auxiliary chains and uses a standard 10" hydraulic cylinder. A single handle withdraws the spring loaded pins for easy uncoupling.

For additional information, write KASTEN MFG. CO., ALLENTON, WIS., or use the Post Card on Page 54. Circle No. 975.

Chlorinator Off to Africa

Everson Manufacturing Corp. reports a United States Government order for two of its Automatic (Air-O-Matic) proportioning feeders for use at the Wheelus Air Force Base, at Tripoli, Libya, Africa.

The Air-O-Matic Sterelator automatically proportions the rate of chlorine flow to flow of liquid over a ratio of 10 to 1 by means of an air-operated differential pressure transmitter which responds to flow changes in the water supply line. Safety features incorporated into the design of these units include one that automatically shuts off chlorine gas when failure occurs. Constant supervision is not required, only an occasional check. This releases the operator for other duties.

Transmitted air pressure is used as an actuating medium to control the Sterelator gas regulating valve for automatic proportioning of chlorine to varying flow of liquid. For additional details, write EVERSON MANUFACTURING CORP., 214 W. HURON ST., CHICAGO 10, ILL., or use the Post Card on Page 54. Circle No. 953.

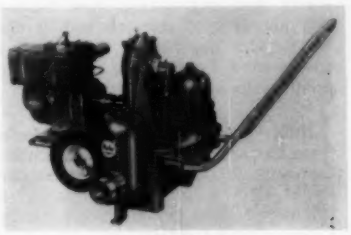
Aluminum Diaphragm Pumps

The two lightweight aluminum diaphragm pumps just introduced by Marlow Pumps have been designated Model 302B-EL and Model 302B-1.

Electric motor driven Model 302B-EL has capacities up to 71 gpm at 56 strokes per minute, and while slightly more compact than Model 302B-1, is 23 pounds heavier.

Model 302B-1, with a Briggs & Stratton 141302 gasoline engine has a capacity of 76 gpm at 60 strokes per minute using a governered engine speed of 1850 rpm. It weighs 158 pounds base-mounted and 169 pounds wheel-mounted.

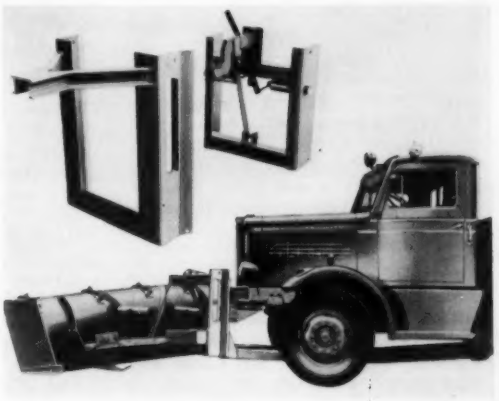
Both models utilize oil-lubricated



Model 302B-1

gear drive. Both have 3" male-threaded suction and discharge, use standard diaphragms, and have replaceable rubber flapper valves. The valves and valve seats can be replaced quickly if required. Gear case and pump body are made of cast aluminum. The body has a readily accessible clean-out and drain hole.

Additional information can be obtained by writing to MARLOW PUMPS, MIDLAND PARK, N. J., or by using the Post Card on Page 54. Circle No. 971.



This new quick-snap coupling for snow plows can be used with any make plow. It enables one man to snap-couple a snow plow and truck in 3 seconds.

About People

John J. Mueller, II, has been appointed director of advertising for Enterprise Division, **General Metals Corp.**, and Enterprise Engine & Machinery Co., General Metals sales subsidiary.

Brigadier General Joseph M. Colby, Deputy Commanding General, U. S. Army Ordnance Missile Command at Redstone Arsenal, Ala., has been named vice president of engineering for **Rockwell Mfg. Co.**, effective October 1. This is a newly created post at Rockwell, and signifies a separation of research and development from product engineering.

Gen. Colby

C. A. Wiken, vice president of research and engineering, now becomes vice president of research and development. This department will devote its energy toward creating or inventing new products to augment existing lines.

Huber-Warco Company, Marion, Ohio has appointed Brantley Machinery Company, 701 Andrews Rd. at Stadium Rd., Columbia, South Carolina, a distributor of H-W motor graders, tandem rollers, 3-wheel rollers and maintainers.

James A. Main, assistant secretary of **The Flintkote Co.** has been named to manage the company's newly aligned Industrial Division.

As assistant district manager in the Northern California-Northern Nevada District of **The Union Metal Mfg. Co.,** Canton 5, Ohio, Calvin Friar will work with Charles Strom, district manager, in the sale of Monotube lighting poles, foundation piles, material handling equipment and other company products.

Dale Anderson has been named zone manager for the East Central territory of **Daybrook Hydraulic Division,** Young Spring & Wire Corp., Bowling Green, Ohio.

Dale L. Bunday has been named to succeed Robert L. Casselberry as national product planning manager for two-way radio equipment engineered by the **General Electric Communication Products Department,** Lynchburg, Va. Mr. Casselberry is now acting manager of G-E's Technical Products Operation at Syracuse, N. Y.

John H. Childs has been named general manager of advertising and sales promotion by **Texaco, Inc.,** New York, N. Y. As a vice president of Cunningham & Walsh, Mr. Childs had been account supervisor on Texaco.

Weir-Chicago Bridge, a newly formed and jointly owned subsidiary company of Chicago Bridge & Iron Company, Chicago, Ill., and G. & J. Weir Limited of Glasgow, Scotland, will design, fabricate and erect saline water conversion plants. The new unit will be headed by William Vandersteel. Executive offices will be at 50 Broad St., New York 4, N. Y. Sales in the United States will be handled through this office and by Chicago Bridge & Iron's 17 district offices.

The new president of **Vulcan Materials Co.,** Birmingham 2, Ala. is Bernard A. Monaghan. He formerly was executive vice president and succeeds Charles W. Ireland, now chairman of the Board, a position formerly held by A. C. Buttfield.

The **Henry Pratt Co.,** formerly of 2222 S. Halsted St., Chicago, Ill., has moved its main office to 319 W. Van Buren St., Chicago. Arthur B. Openshaw, Jr., will be responsible for direct sales of manufactured equipment in the Chicago area and will headquarter at the company's new offices. Robert L. Armstrong, in a similar capacity, will have offices in Los Angeles, Calif. and will handle direct sales in Arizona, New Mexico and southern California territory.

Hugo Baldelli has been appointed southwestern regional manager for **Byron Jackson Pumps, Inc.,** Los Angeles, Calif., a subsidiary of Borg-Warner Corporation, according to an announcement made by Norman D. Jesse, vice president and general sales manager of the company.

From **United States Pipe and Foundry Co.,** Birmingham, Ala., comes word of the appointment of Bartlett G. Bretz as southern sales manager to succeed T. W. McCreery, retired, and the naming of James J. McCarthy to head the company's new Detroit area sales office at 12300 Farmington Road, Livonia, Mich.

As eastern sales manager for **LeTourneau-Westinghouse Company,** Peoria, Ill., J. E. Sheets will be in charge of 22 states and five Canadian provinces.

Robert L. Koob has joined the **Allis-Chalmers Mfg. Co.,** Milwaukee, Wis., as director of public affairs, a newly created position. He will act as a consultant on government affairs to all divisions of the company.

Harry N. Dietz, recently appointed a vice president of **Orangeburg Mfg. Co.,** a division of The Flintkote Company, will headquarter in Orangeburg's New York City offices and will continue in charge of conduit sales.

The Portland Cement Association, Chicago 10, Ill., has appointed Alan C. Carter as Salt Lake City district engineer, to succeed Ralph E. Spears, named regional structural engineer for the Association's west central region.

John M. D. Suesman, former assistant district manager of New England sales for **B-I-F Industries, Inc.,** Providence, R. I., has been named director of purchases, with responsibility for the overall direction, planning and coordination of all B-I-F purchasing functions.

Norman A. Densberger, recently appointed a sales engineer for the **Hersey Mfg. Co.** of Dedham, Mass., will cover western and central Pennsylvania and part of western New York state.

Paul H. Brown, recently associated with the City Tank Corp. as vice president-sales manager, is the new eastern regional manager for **The Elgin Corp.,** Chicago 6, Ill. He replaces Ray Engels, retired.

Merwin B. Clapp, formerly of the general sales staff of **Chicago Bridge and Iron Company,** has been transferred to the company's Chicago district office as a contracting engineer.

Word from **The Yale & Towne Mfg. Co.,** is that R. J. "Red" Lyons, Jr., has been appointed Trojan tractor shovel district representative in New Jersey, Pennsylvania, Maryland, Virginia, West Virginia, Kentucky, Ohio and the southern portion of New York State. Robert C. Peterson will serve in a similar capacity in Montana, Wyoming, Utah, Colorado, New Mexico, Arizona and the Province of Saskatchewan.

Charles Kuhn, sales manager of **Dresser Manufacturing Division,** Bradford, Pa., has been appointed vice president—sales manager of the division.

President W. A. Romain has announced the promotion of Jack Trout to claims manager for **Sherman Products, Inc., Royal Oak,** Mich., leading manufacturer and distributor of tractor-mounted earth moving, soil preparing and materials handling equipment.

Robert C. Stuart, former director of the Metropolitan Planning Commission, Atlanta, Ga., has been appointed director of the Planning Division of **Educational and Technical Consultants, Inc.,** a planning and management organization with offices in the First National Bank Bldg., Evanston, Ill.

John W. Sullivan is now western area representative for city, county and state government contracts for **Remington Rand UNIVAC Division** of Sperry Rand Corporation. His headquarters are at 2601 Wilshire Blvd., Los Angeles, Calif., and his services

AMERICAN METERS

HAVE WHAT THE WATER SUPERINTENDENT WANTS

YEARS OF

DEPENDABILITY

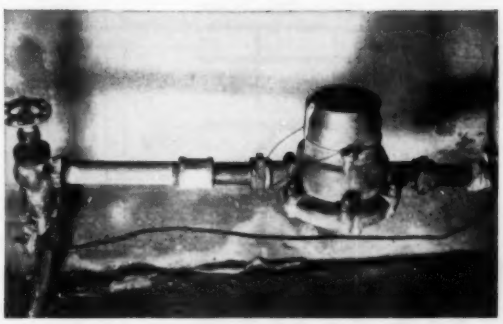
- SILENT OPERATION
- TROUBLE-FREE SERVICE

AMERICAN
Frost Bottom Meter

More than a million American Meters have been in service over 20 years operating silently, accurately — year after year. That's the best kind of proof of AMERICAN METER Dependability!

Simplicity of design with fewer working parts *keeps* AMERICAN METERS quiet. Metal to metal clicking noises and delicate parts that set up vibration were never found in these meters. That's why the whisper quiet operation of AMERICAN METERS means also dependable, trouble-free service.

Yes, AMERICAN METERS have the kind of Dependability the Water Superintendent wants.



This AMERICAN METER has been in operation for 22 years without repairs and is still in excellent condition. It is typical of thousands of others whose ultimate life averages 40 years or more.

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INCORPORATED

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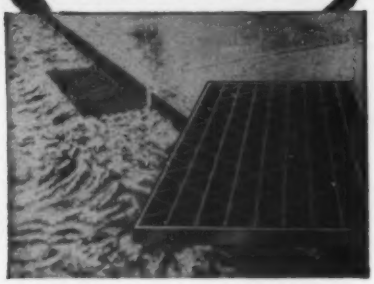
Buffalo 14, N. Y.

FLOODED HIGHWAYS HINDER TRAFFIC



OLD heavy cast iron draingrates, averaging at best 40% clear opening, often fail to carry off rain water fast enough during heavy downpours, resulting in flooded highways—particularly at underpasses. Also, cracked draingrates must be replaced.

With open steel mesh draingrates, larger clear openings reduce the likelihood of flooded highways considerably. Irving "Dryway" Draingrates are 75% open for greater drainage and are made of steel bars on edge, not subject to cracking.

Available in three basic designs:

Riveted

Pressure-Locked

RI-6

Write for brochure on "Dryway" Draingrates
Self-maintaining, Lightweight, Economical, Safe

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Originators of the Grating Industry

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1830 10th St., Oakland 23, California

About People

will be available to all city, county and state government offices interested in the use of Data Processing equipment in the solution of management problems.

Former assistant sales manager Timothy J. O'Shea of the **Stephenson Corp.,** Red Bank, N. J., has been appointed sales manager. He will be responsible for the sales of resuscitators, controlled respiration units, Harger Drunkometers and Borkenstein Breathalyzers used by law enforcement agencies.

The recent appointment of Edwin R. Clarke as manager, Industrial Relations for **American Meter Company,** Erie, Pa., has been announced by William G. Hamilton, Jr., president.

The appointment of Hugh H. Goodwin, sales representative, has been announced by J. H. Newton, sales manager, White Diesel Engine Division, **The White Motor Company,** Springfield, Ohio.

Word has just been received of the death of Horace B. Horton, chairman of the board of **Chicago Bridge & Iron Co.,** Chicago 4, Ill., world-wide steel fabricating and construction firm. He was 73 years of age.

CLASSIFIED ADVERTISING
Advertisements in this section will be accepted at the rate of $15 per col. inch (minimum 2 inches). Send copy for ads to the Production Department, THE AMERICAN CITY, 470 Park Ave. South, New York 16, N.Y.

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Applicants must be experienced in road maintenance, road construction, and drainage work and must have administrative experience. Degree in civil engineering is desirable. Starting salary, $6,000 a year with a $500 increase after six months and with automatic increases each year thereafter until the maximum of $8,835 is reached in 5 years. Liberal vacation, sick leave, holidays, and other benefits.

Address all applications to Dr. Arnold Barton, Chairman, Board of Selectmen, Town Hall, Sharon, Massachusetts. All applications will be held in the strictest confidence.

MANAGER

Municipal and Commercial Sales

We are seeking a qualified young sales executive to report to our Vice President/Sales. He will be responsible for the creation, execution and supervision of programs for municipal, commercial, and military sales of our products. Applicants must have proven record of ability to develop leads and follow through with dealers on final contracts for fleet or industrial sales of transportation equipment. Please reply, giving brief resume of personal history and experience.

Box 118
THE AMERICAN CITY
470 PARK AVE. SOUTH
New York 16, N. Y.

Wanted Director of Public Works

Apply in writing giving full background of your education and qualifications. A recent snapshot of applicant should accompany application.

Mail reply to C. B. Talmadge, City Manager, 33 West Avenue A, Belle Glade, Florida.

WANTED

Executive Assistant to Municipal Governing Body

Progressive, growing residential community of 18,000 population, 25 miles from New York City, College training in government and some experience required. Public relations background desirable. Full time. Salary open. Write: Township Committee, Municipal Building, Scotch Plains, N. J.

Representatives Wanted

Two factory representatives wanted by largest manufacturer of traffic control marking equipment to open new branch offices selling municipalities and distributors. This equipment is needed by every city, county and state. Also large potential in industrial plants. Two areas open—Illinois and New York. Salary and override. Previous experience in selling equipment to cities desirable. Include complete resume of experience in your application.

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Three Penn Center Plaza, Philadelphia 2, Pa.

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Mechanical—Civil—Electrical
Municipal Improvements
65 McCall Place
MEMPHIS, TENNESSEE

ALVORD BURDICK & HOWSON
ENGINEERS
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Water Purification — Drainage
Flood Relief — Appraisals
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Consulting Engineer
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"Plans Which Can Be Carried Out"
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Complete facilities for all aerial photography, processing, photogrammetric drafting and reproduction.
Planimetric, topographic maps and profiles. Large scale atlas sheets. Infra-red for forestry analysis.
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AERO SERVICE CORPORATION
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You're looking at a Cat No. 112 Motor Grader working shoulders on a typical street in the City of Hampton, Virginia. The No. 112 averages 5 miles per 7-hour day on this job. The city keeps it busy all year round rebuilding roads, spreading rock and lime, cleaning ditches and removing snow. Officials in the Public Works Department responsible for its purchase say this about its performance: "The No. 112 does a big job for us at low operating cost. Our maintenance worries are nonexistent. We are very satisfied with it and with the speed and reliability of service from our Caterpillar Dealer."

When you invest your taxpayers' dollars in a machine, performance and dealer service are two important factors to consider. Even more important is this factor—*total* cost. Public records from all over the country prove that the *low* total cost of Cat Motor Graders makes them your best investment. Accurate cost records of yearly operation and maintenance give evidence of the job you can expect from a Cat-built machine.

To match your job needs, your Caterpillar Dealer offers two other Motor Graders besides the 75 HP, 20,805 lb. No. 112. There's the 115 HP, 23,115 lb. No. 12 and the new 150 HP, 29,280 lb. No. 14. Each is designed to do more work at lower cost with less down time than any other grader in its class. Ask to see them work!

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

PRECO AUTOMATIC BLADE CONTROL CUTS GRADING TIME IN HALF

—optional on the Cat No. 112 Motor Grader

Exclusive with Caterpillar, the Preco Control is now transistorized for freedom of maintenance and adjustment. The operator sets the desired slope on a dial, and the unit automatically maintains blade slope within ⅛" in 10', regardless of position of grader or unevenness of terrain. Fine for *all* types of grading. Preco is also optional on the No. 12 and No. 14.

Mechanical controls (standard) offer positive action, make blade adjustment precise. Powered right from the engine, they give a speed and range of blade movements that no other unit can match.

CATERPILLAR

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BUY LOW TOTAL COST—
BUY CAT MOTOR GRADERS

TROJAN GETS ITS SEA LEGS

...outclasses all other tractor shovels for principal job of barge unloading at concrete pipe plant...

"We tried out six loaders before we bought our Trojan," says Ralph M. Simpson, plant superintendent, Seattle Concrete Pipe Company in Seattle, Washington.

REPLACES TWO MACHINES

After landing the job of "handy-man", the Trojan went on to prove it could easily take the place of a crane and truck in the unloading of barges and distribution of material—and do it more efficiently, more economically. Its fast cycle operation proved invaluable as this major change was made in the handling of incoming materials.

ANOTHER PAT-ON-THE-BACK FOR TROJAN

Mr. Simpson goes on to say. "Not only does the Trojan serve us well in its primary job of large work, it moves material all over the yard, cleans up, moves other equipment and even levels ground. We tried them all and judged the Trojan best for the job."

BEST BY TEST

This is one more example of Trojan's ability to outwork other machines. Ask your distributor . . . he'll be glad to demonstrate its outstanding versatility on *your* job.

Here, on board the barge, the hard-working Trojan picks up another load of gravel for transportation to the stockpile area.

AD NO. 44-40

The Trojan line includes eight models with lifting capacities from 5,000 to 20,000 lbs. and bucket capacities from 1 to 4 cu. yds.

THE **YALE & TOWNE** MFG. CO.
TROJAN DIVISION

BATAVIA, NEW YORK • SAN LEANDRO, CALIFORNIA

TROJAN®
TRACTOR SHOVELS
YALE & TOWNE

6 Michigans for Baltimore Highway Dept.

City set for crippling snow storms, meanwhile speeds road repair, landfill work

Like many communities south of the Snow Belt, the City of Baltimore, Maryland, needs heavy-duty snow removal equipment only occasionally. Specialized units just aren't economical. Yet, at times, only their efficiencies can unblock a snow-plugged city.

Obviously, this need can best be filled by machines which are good snow fighters as well as good dirtmovers. Baltimore's choice is Michigan Tractor Shovels—six of them!

Snowbound . . . never again!

This vital selection was triggered by a "once-in-a-lifetime" snowstorm of two years ago. It stopped traffic for three days . . . kept most of the city's 982,000 people from leaving their homes. When streets were finally cleared—and the discomfort, inconvenience, and fire danger over—the City Government vowed, "Never again!"

Soon, they had written a 375 page master snow removal plan. Some 90 new plows were bought to attach to their trucks and graders. For fast clearing of the main trouble spots—405 linear miles, 1665 plow miles of principal streets and intersections—in came the six powerful, high-speed Michigans.

The main advantages of these units has proved to be their *dependability*, *speed*, and *versatility*. Equipped with plows, each four-wheel-drive, power-steered, torque-converter machine can clear a path 8 to 9 ft wide. With buckets—which interchange simply by removing four pins—units speedily load windrowed snow. And, in summer, they speed all kinds of dirtmoving and maintenance jobs . . .

Assigned to street crews

Five of the machines—all 2 yd Model 125A's—are assigned throughout the dirtmoving season primarily to road repaving and grading crews. They shuttle at traffic speeds from job to job, clearing old pavement, digging and loading dirt, handling road material, etc.

One Michigan speeds cleanup at three scattered sites

The sixth Michigan, a 2¾ yd Model 175A, handles cleanup and coverage at *two* landfill garbage dumps *AND* cleanup around a city incinerator. This 27 mph rig shuttles between sites under its own power . . . dozes and covers an average of 100 truck-loads of street dirt, tin cans and incinerator ash per 8-hour day.

"This rig—and our other Michigans—are doing a fine job!" says George V. Walters, Baltimore's general superintendent of highways. "The machines were purchased and delivered Sept 24, 1958, and as of this date we have had no tire troubles. Distributor service (from Paving Supply & Equipment Co) is excellent! We think every city could do well to investigate the fast, high-speed, dependable Michigan line!"

On typical landfill assignment Michigan dozes refuse over bank. Later the 2¾ yd rig will dig bank-run gravelly sand and carry it in for cover. Compaction is achieved during normal dozing both before and after coverage.

Michigan is a registered trademark of

CLARK EQUIPMENT COMPANY
Construction Machinery Division

CLARK® EQUIPMENT

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